

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 3

AMENDED REPORT ☐

<b>APPLICATION FOR PERMIT TO DRILL</b>						<b>1. WELL NAME and NUMBER</b> NBU 922-3604BS			
<b>2. TYPE OF WORK</b> DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>						<b>3. FIELD OR WILDCAT</b> NATURAL BUTTES			
<b>4. TYPE OF WELL</b> Gas Well Coalbed Methane Well: NO						<b>5. UNIT or COMMUNITIZATION AGREEMENT NAME</b> NATURAL BUTTES			
<b>6. NAME OF OPERATOR</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.						<b>7. OPERATOR PHONE</b> 720 929-6515			
<b>8. ADDRESS OF OPERATOR</b> P.O. Box 173779, Denver, CO, 80217						<b>9. OPERATOR E-MAIL</b> julie.jacobson@anadarko.com			
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> ML-22650			<b>11. MINERAL OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>			<b>12. SURFACE OWNERSHIP</b> FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>			
<b>13. NAME OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>			
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</b>			
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>			<b>18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS</b> YES <input checked="" type="checkbox"/> (Submit Commingling Application) NO <input type="checkbox"/>			<b>19. SLANT</b> VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>			

20. LOCATION OF WELL	FOOTAGES	QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN
LOCATION AT SURFACE	1250 FSL 2103 FEL	SWSE	36	9.0 S	22.0 E	S
Top of Uppermost Producing Zone	415 FSL 1814 FEL	SWSE	36	9.0 S	22.0 E	S
At Total Depth	415 FSL 1814 FEL	SWSE	36	9.0 S	22.0 E	S

<b>21. COUNTY</b> UINTAH		<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 415		<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 640	
		<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 123		<b>26. PROPOSED DEPTH</b> MD: 8695 TVD: 8560	
<b>27. ELEVATION - GROUND LEVEL</b> 4973		<b>28. BOND NUMBER</b> 22013542		<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> Permit #43-8496	

Hole, Casing, and Cement Information										
String	Hole Size	Casing Size	Length	Weight	Grade & Thread	Max Mud Wt.	Cement	Sacks	Yield	Weight
Surf	11	8.625	0 - 2190	28.0	J-55 LT&C	0.2	Type V	180	1.15	15.8
							Class G	270	1.15	15.8
Prod	7.875	4.5	0 - 8695	11.6	I-80 LT&C	12.5	Premium Lite High Strength	270	3.38	11.0
							50/50 Poz	1190	1.31	14.3

ATTACHMENTS	
<b>VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES</b>	
<input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER	<input checked="" type="checkbox"/> COMPLETE DRILLING PLAN
<input type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)	<input type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)	<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP

<b>NAME</b> Gina Becker	<b>TITLE</b> Regulatory Analyst II	<b>PHONE</b> 720 929-6086
<b>SIGNATURE</b>	<b>DATE</b> 05/14/2011	<b>EMAIL</b> gina.becker@anadarko.com
<b>API NUMBER ASSIGNED</b> 43047516040000	<b>APPROVAL</b> <div style="text-align: center;">             Permit Manager         </div>	

**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 922-3604BS**

Surface:	1250 FSL / 2103 FEL	SWSE
BHL:	415 FSL / 1814 FEL	SWSE

Section 36 T9S R22E

Unitah County, Utah  
Mineral Lease: ML-22650**ONSHORE ORDER NO. 1****DRILLING PROGRAM**

1. & 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 - Surface	
Green River	1101	
Birds Nest	1369	Water
Mahogany	1736	Water
Wasatch	4164	Gas
Mesaverde	6333	Gas
MVU2	7343	Gas
MVL1	7924	Gas
TVD	8560	
TD	8695	

3. **Pressure Control Equipment** (Schematic Attached)

*Please refer to the attached Drilling Program*

4. **Proposed Casing & Cementing Program:**

*Please refer to the attached Drilling Program*

5. **Drilling Fluids Program:**

*Please refer to the attached Drilling Program*

6. **Evaluation Program:**

*Please refer to the attached Drilling Program*

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8560' TVD, approximately equals  
 5,650 psi 0.64 psi/ft = actual bottomhole gradient

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Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,583 psi (bottom hole pressure  
 minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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Per Onshore Order No. 2 - Max Anticipated Surf. Press.(MASP) = (Pore Pressure at next csg point-  
 (0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

*Drilling is planned to commence immediately upon approval of this application.*

**9. Variances:**

*Please refer to the attached Drilling Program.*

*Onshore Order #2 – Air Drilling Variance*

*Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2*

- *Blowout Prevention Equipment (BOPE) requirements;*
- *Mud program requirements; and*
- *Special drilling operation (surface equipment placement) requirements associated with air drilling.*

*This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.*

*The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.*

*More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.*

**Background**

*In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.*

*Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.*

*The air rig is then mobilized to drill the surface casing hole by drilling a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.*

*KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.*

#### ***Variance for BOPE Requirements***

*The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.*

#### ***Variance for Mud Material Requirements***

*Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.*

#### ***Variance for Special Drilling Operation (surface equipment placement) Requirements***

*Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.*

*Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.*

*Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and*



*on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.*

*Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.*

***Conclusion***

*The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.*

**10. Other Information:**

*Please refer to the attached Drilling Program.*

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP				DATE	May 13, 2011	
WELL NAME	<b>NBU 922-36O4BS</b>				TD	8,560'	8,695' MD
FIELD	Natural Buttes	COUNTY	Uintah	STATE	Utah	FINISHED ELEVATION	4972.9
SURFACE LOCATION	SWSE	1250 FSL	2103 FEL	Sec 36	T 9S	R 22E	
	Latitude:	39.988703	Longitude:	-109.3857		NAD 83	
BTM HOLE LOCATION	SWSE	415 FSL	1814 FEL	Sec 36	T 9S	R 22E	
	Latitude:	39.98641	Longitude:	-109.384657		NAD 83	
OBJECTIVE ZONE(S)	Wasatch/Mesaverde						
ADDITIONAL INFO	Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept.						

NBU 922-360 Pad- Directional Program- 050911.xls



## KERR-McGEE OIL & GAS ONSHORE LP

### DRILLING PROGRAM

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS		
						LTC		BTC
						BURST	COLLAPSE	TENSION
CONDUCTOR	14"	0-40'						
						3,390	1,880	348,000
SURFACE	8-5/8"	0 to 2,190	28.00	IJ-55	LTC	2.47	1.83	6.48
						7,780	6,350	279,000
PRODUCTION	4-1/2"	0 to 8,695	11.60	I-80	LTC/BTC	1.11	1.14	3.42
								4.50

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg)

0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW)

(Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi)

0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW)

(Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**CEMENT PROGRAM**

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT		YIELD
SURFACE	LEAD	500'	Premium cmt + 2% CaCl	180	60%	15.80		1.15
			+ 0.25 pps flocele					
Option 1								
	TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt	270	0%	15.80		1.15
			+ 2% CaCl + 0.25 pps flocele					
			NOTE: If well will circulate water to surface, option 2 will be utilized					
SURFACE	LEAD	1,690'	65/35 Poz + 6% Gel + 10 pps gilsonite	160	35%	11.00		3.82
			+ 0.25 pps Flocele + 3% salt BWOW					
Option 2								
	TAIL	500'	Premium cmt + 2% CaCl	150	35%	15.80		1.15
			+ 0.25 pps flocele					
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80		1.15
PRODUCTION	LEAD	3,655'	Premium Lite II +0.25 pps	270	20%	11.00		3.38
			celloflake + 5 pps gilsonite + 10% gel					
			+ 0.5% extender					
	TAIL	5,040'	50/50 Poz/G + 10% salt + 2% gel	1,190	35%	14.30		1.31
			+ 0.1% R-3					

\*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

\*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

**FLOAT EQUIPMENT & CENTRALIZERS**

SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe
PRODUCTION	Float shoe, 1 jt, float collar. No centralizers will be used.

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

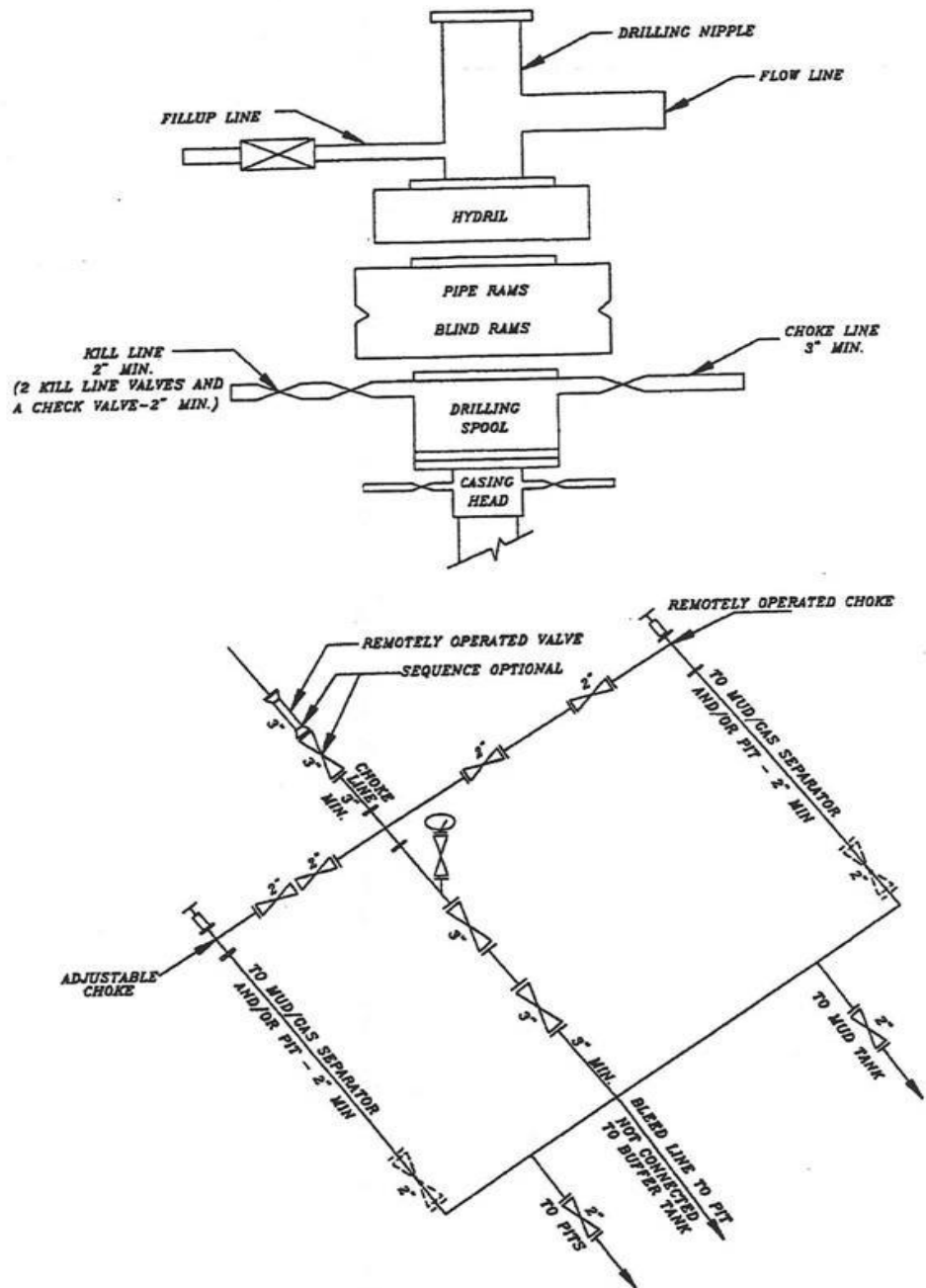
BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:**\_\_\_\_\_  
Nick Spence / Emile Goodwin**DATE:****DRILLING SUPERINTENDENT:**\_\_\_\_\_  
Kenny Gathings / Lovel Young**DATE:**

# EXHIBIT A NBU 922-3604BS



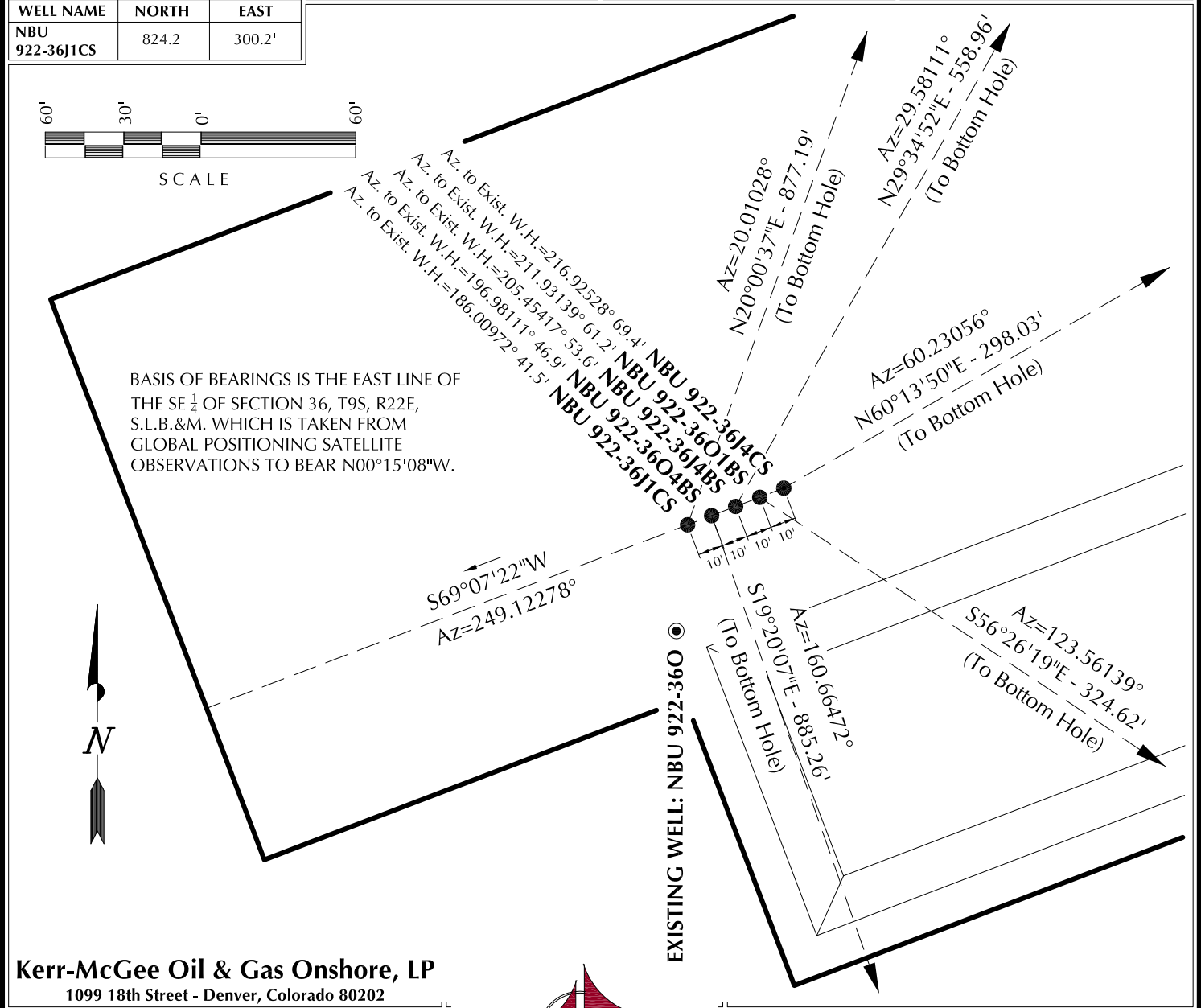
SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK



WELL NAME	SURFACE POSITION					BOTTOM HOLE				
	NAD83		NAD27		FOOTAGES	NAD83		NAD27		FOOTAGES
	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
NBU 922-36J4CS	39°59'19.313"	109°23'10.611"	39°59'19.436"	109°23'08.160"	1261' FSL	39°59'20.772"	109°23'07.287"	39°59'20.896"	109°23'04.836"	1409' FSL
NBU 922-36O1BS	39.988698°	109.386281°	39.988732°	109.385600°	2075' FEL	39.989103°	109.385357°	39.989138°	109.384677°	1816' FEL
NBU 922-36O4BS	39°59'19.277"	109°23'10.731"	39°59'19.401"	109°23'08.280"	1257' FSL	39°59'17.502"	109°23'07.259"	39°59'17.626"	109°23'04.808"	1078' FSL
NBU 922-36J1CS	39.988688°	109.386314°	39.988723°	109.385633°	2085' FEL	39.988195°	109.385350°	39.988229°	109.384669°	1815' FEL
NBU 922-36J4BS	39°59'19.242"	109°23'10.851"	39°59'19.366"	109°23'08.400"	1254' FSL	39°59'24.043"	109°23'07.302"	39°59'24.166"	109°23'04.851"	1740' FSL
NBU 922-36O4BS	39.988678°	109.386348°	39.988713°	109.385667°	2094' FEL	39.990012°	109.385362°	39.990046°	109.384681°	1816' FEL
NBU 922-36O4BS	39°59'19.207"	109°23'10.971"	39°59'19.331"	109°23'08.520"	1250' FSL	39°59'10.952"	109°23'07.216"	39°59'11.075"	109°23'04.765"	415' FSL
NBU 922-36J1CS	39.988669°	109.386381°	39.988703°	109.385700°	2103' FEL	39.986375°	109.385338°	39.986410°	109.384657°	1814' FEL
NBU 922-36J1CS	39°59'19.172"	109°23'11.091"	39°59'19.296"	109°23'08.641"	1247' FSL	39°59'27.313"	109°23'07.227"	39°59'27.437"	109°23'04.776"	2071' FSL
NBU 922-36O	39.988659°	109.386414°	39.988693°	109.385733°	2113' FEL	39.990920°	109.385341°	39.990955°	109.384660°	1809' FEL
NBU 922-36O	39°59'18.765"	109°23'11.148"	39°59'18.888"	109°23'08.697"	1205' FSL					
NBU 922-36O	39.988546°	109.386430°	39.988580°	109.385749°	2117' FEL					

RELATIVE COORDINATES - From Surface Position to Bottom Hole

WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST	WELL NAME	NORTH	EAST
NBU 922-36J4CS	148.0'	258.7'	NBU 922-36O1BS	-179.5'	270.5'	NBU 922-36J4BS	486.1'	275.9'	NBU 922-36O4BS	-835.3'	293.1'



Kerr-McGee Oil & Gas Onshore, LP  
1099 18th Street - Denver, Colorado 80202

WELL PAD - NBU 922-36O

WELL PAD INTERFERENCE PLAT  
WELLS - NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH.



CONSULTING, LLC  
2155 North Main Street  
Sheridan WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

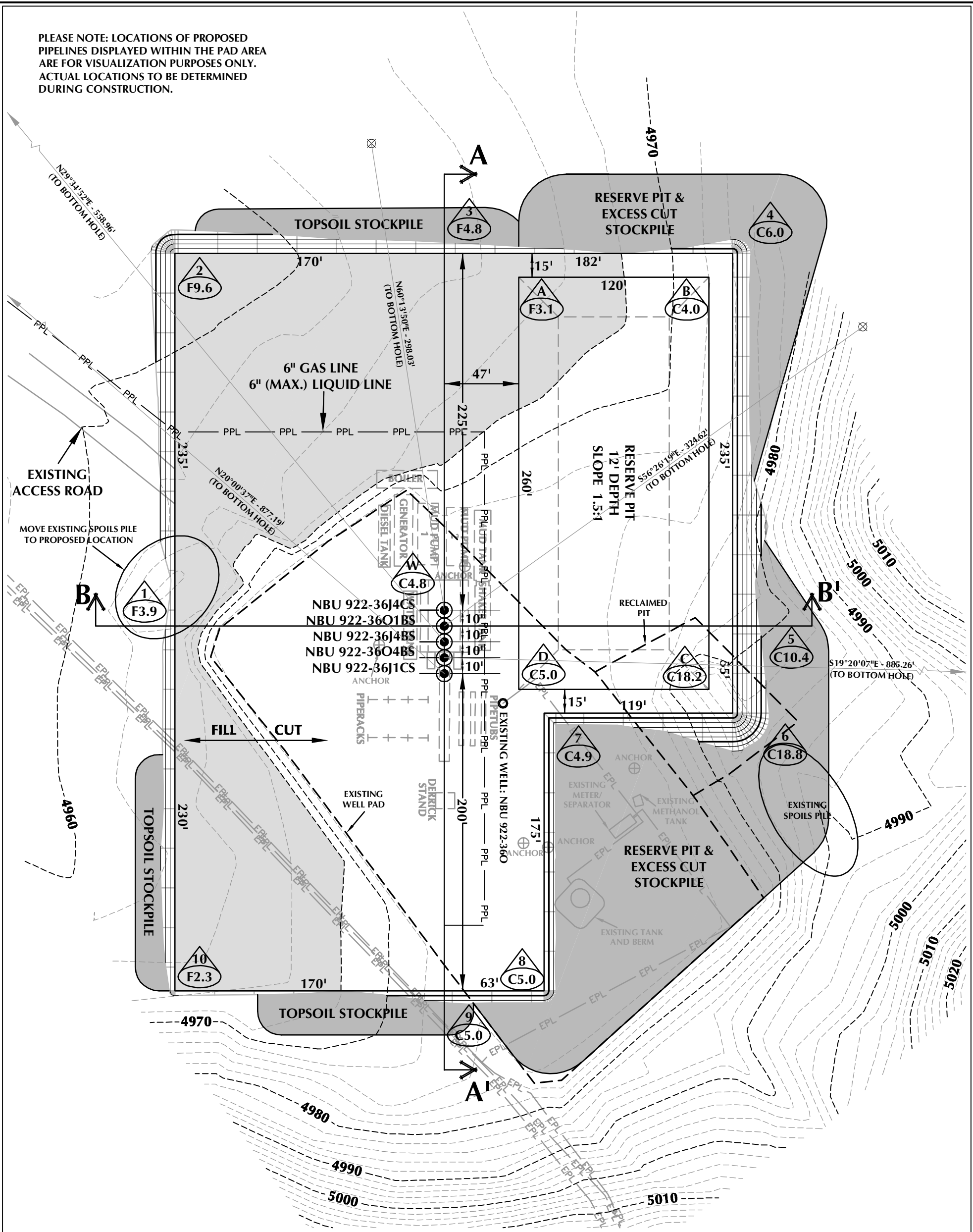
TIMBERLINE

(435) 789-1365

ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE SURVEYED: 09-02-10	SURVEYED BY: M.S.B.	SHEET NO:  <b>6</b>  6 OF 17
DATE DRAWN: 11-17-10	DRAWN BY: E.M.S.	
SCALE: 1" = 60'	Date Last Revised:	





WELL PAD - NBU 922-360 DESIGN SUMMARY

EXISTING GRADE @ CENTER OF WELL PAD = 4972.8'  
FINISHED GRADE ELEVATION = 4968.0'  
CUT SLOPES = 1.5:1  
FILL SLOPES = 1.5:1  
TOTAL WELL PAD AREA = 3.63 ACRES  
TOTAL DAMAGE AREA = 6.38 ACRES  
SHRINKAGE FACTOR = 1.10  
SWELL FACTOR = 1.00

Kerr-McGee Oil & Gas Onshore, LP  
1099 18th Street - Denver, Colorado 80202

WELL PAD - NBU 922-360

WELL PAD - LOCATION LAYOUT  
NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH



CONSULTING, LLC  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

WELL PAD QUANTITIES

TOTAL CUT FOR WELL PAD = 14,706 C.Y.  
TOTAL FILL FOR WELL PAD = 10,805 C.Y.  
TOPSOIL @ 6" DEPTH = 2,115 C.Y.  
EXCESS MATERIAL = 3,901 C.Y.

RESERVE PIT QUANTITIES

TOTAL CUT FOR RESERVE PIT  
+/- 11,020 C.Y.  
RESERVE PIT CAPACITY (2' OF FREEBOARD)  
+/- 42,290 BARRELS

WELL PAD LEGEND

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PROPOSED BOTTOM HOLE LOCATION
- EXISTING CONTOURS (2' INTERVAL)
- PROPOSED CONTOURS (2' INTERVAL)
- PPL - PROPOSED PIPELINE
- EPL - EXISTING PIPELINE



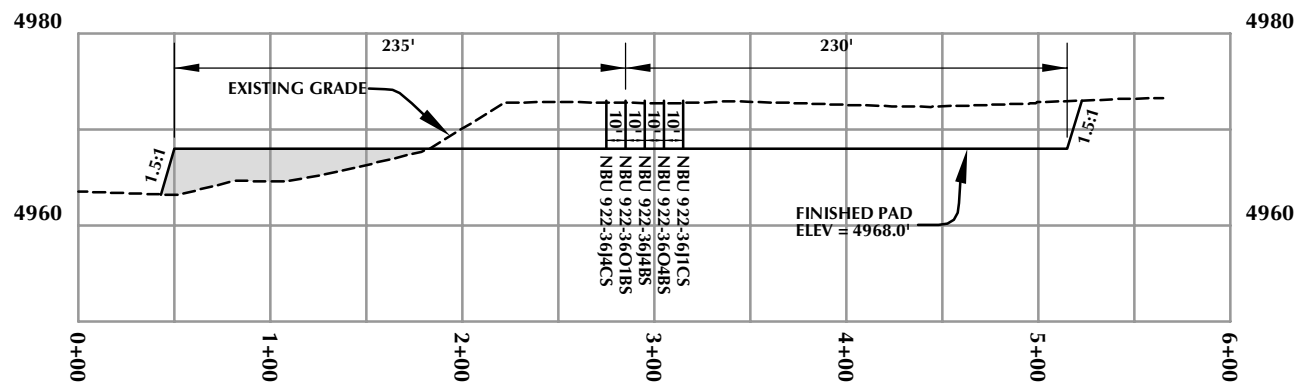
HORIZONTAL 0 30' 60' 1" = 60'  
2' CONTOURS

SCALE: 1"=60' DATE: 12/3/10 SHEET NO:

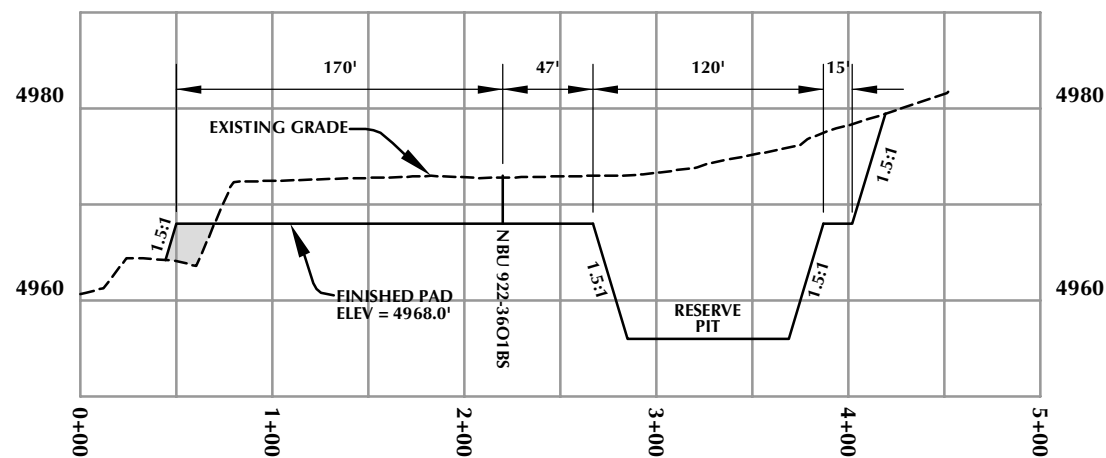
REVISED: 7 7 OF 17

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ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

(435) 789-1365



**CROSS SECTION A-A'**



**CROSS SECTION B-B'**

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 922-36O**

**WELL PAD - CROSS SECTIONS**

NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**TIMBERLINE**  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

(435) 789-1365

**HORIZONTAL** 0 50' 100' 1" = 100'  
**VERTICAL** 0 10' 20' 1" = 20'

Scale: 1"=100'  
REVISED:

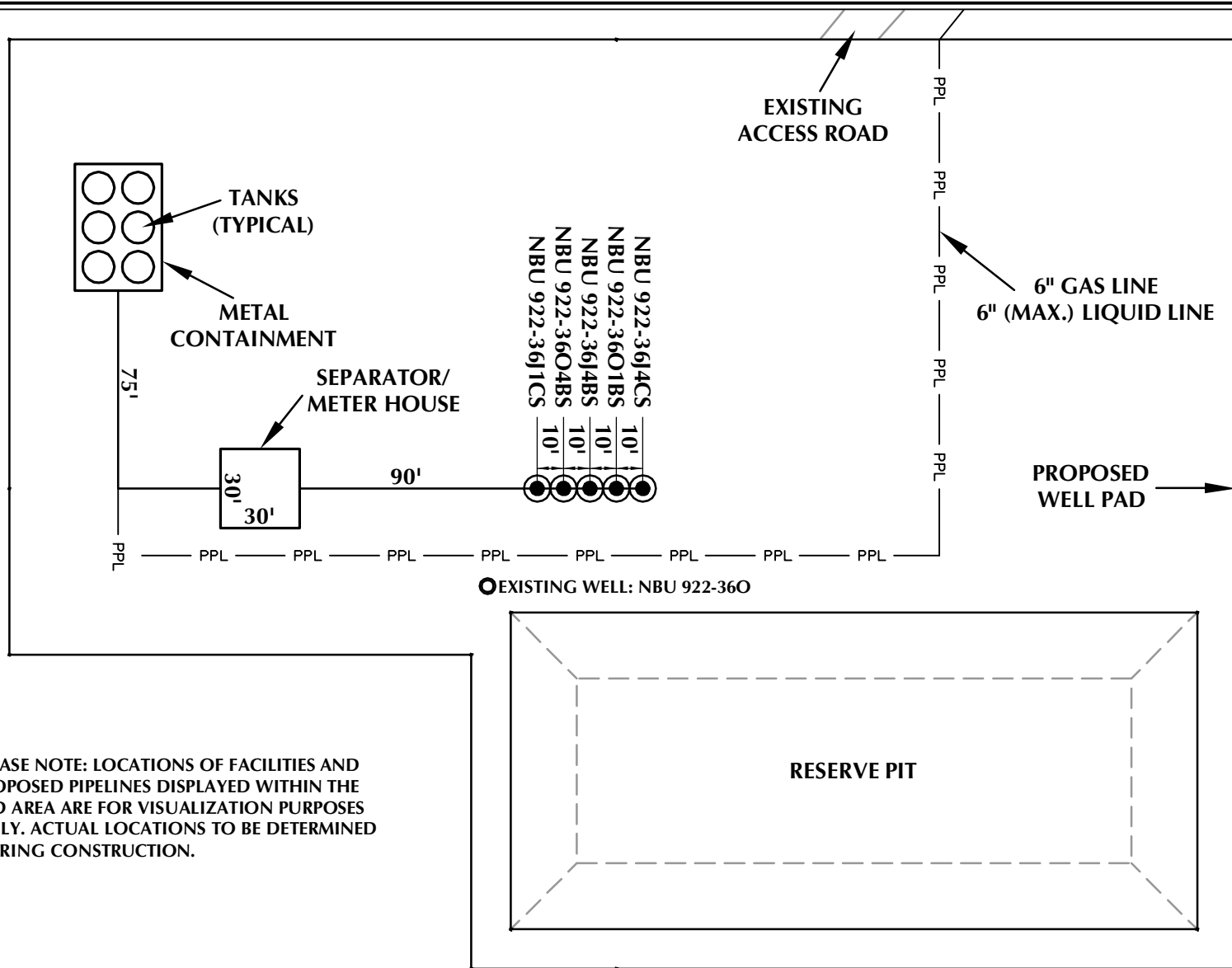
Date: 12/3/10

SHEET NO:

**8**

8 OF 17





**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 922-36O**

**WELL PAD - FACILITIES DIAGRAM**  
NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UINTAH COUNTY, UTAH



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone 307-674-0609  
Fax 307-674-0182

**WELL PAD LEGEND**

- EXISTING WELL LOCATION
- PROPOSED WELL LOCATION
- PPL — PROPOSED PIPELINE
- EPL — EXISTING PIPELINE



HORIZONTAL 1" = 60'

**TIMBERLINE** (435) 789-1365  
ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

Scale: 1"=60' Date: 12/3/10  
REVISED:

SHEET NO:  
**9** 9 OF 17

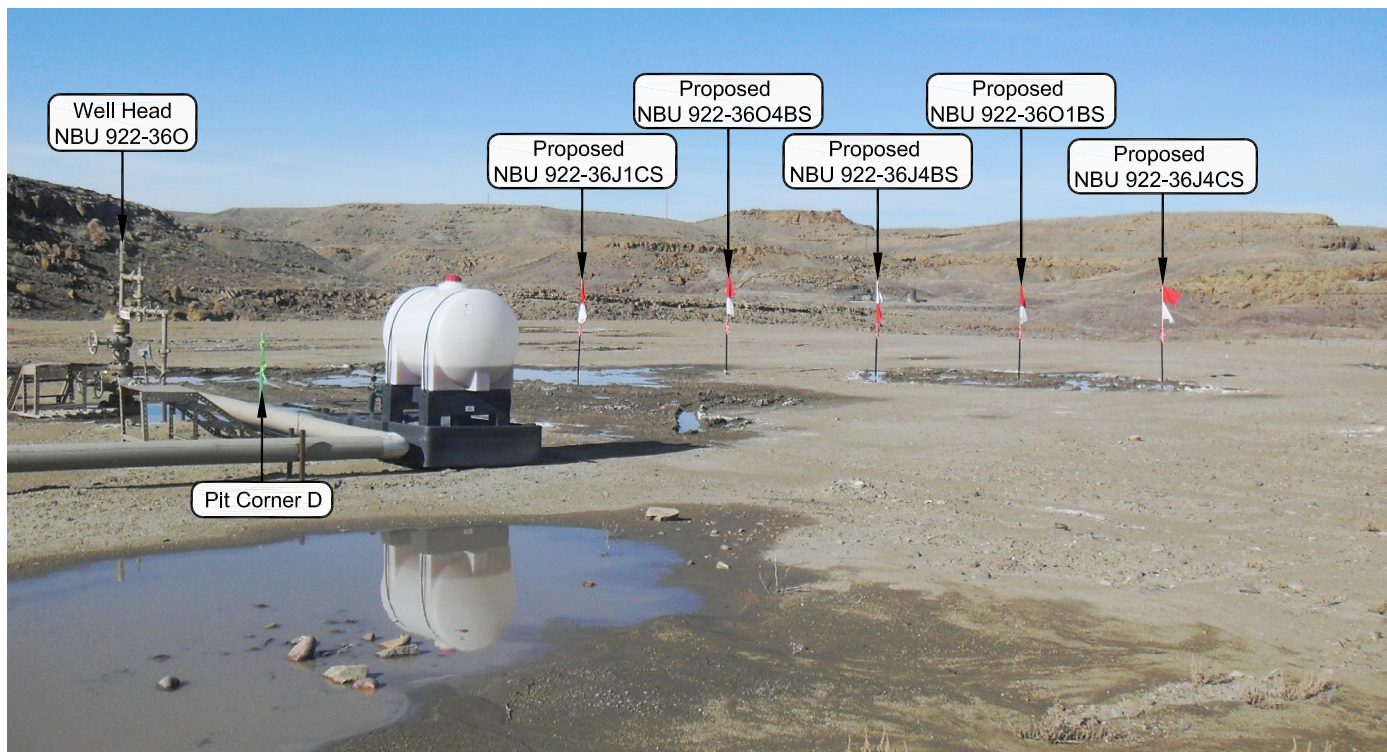


PHOTO VIEW: FROM PIT CORNER D TO LOCATION STAKE

CAMERA ANGLE: NORTHWESTERLY



PHOTO VIEW: FROM EXISTING ACCESS ROAD

CAMERA ANGLE: SOUTHERLY

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street - Denver, Colorado 80202

**WELL PAD - NBU 922-36O**

LOCATION PHOTOS  
NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., Uintah County, Utah.



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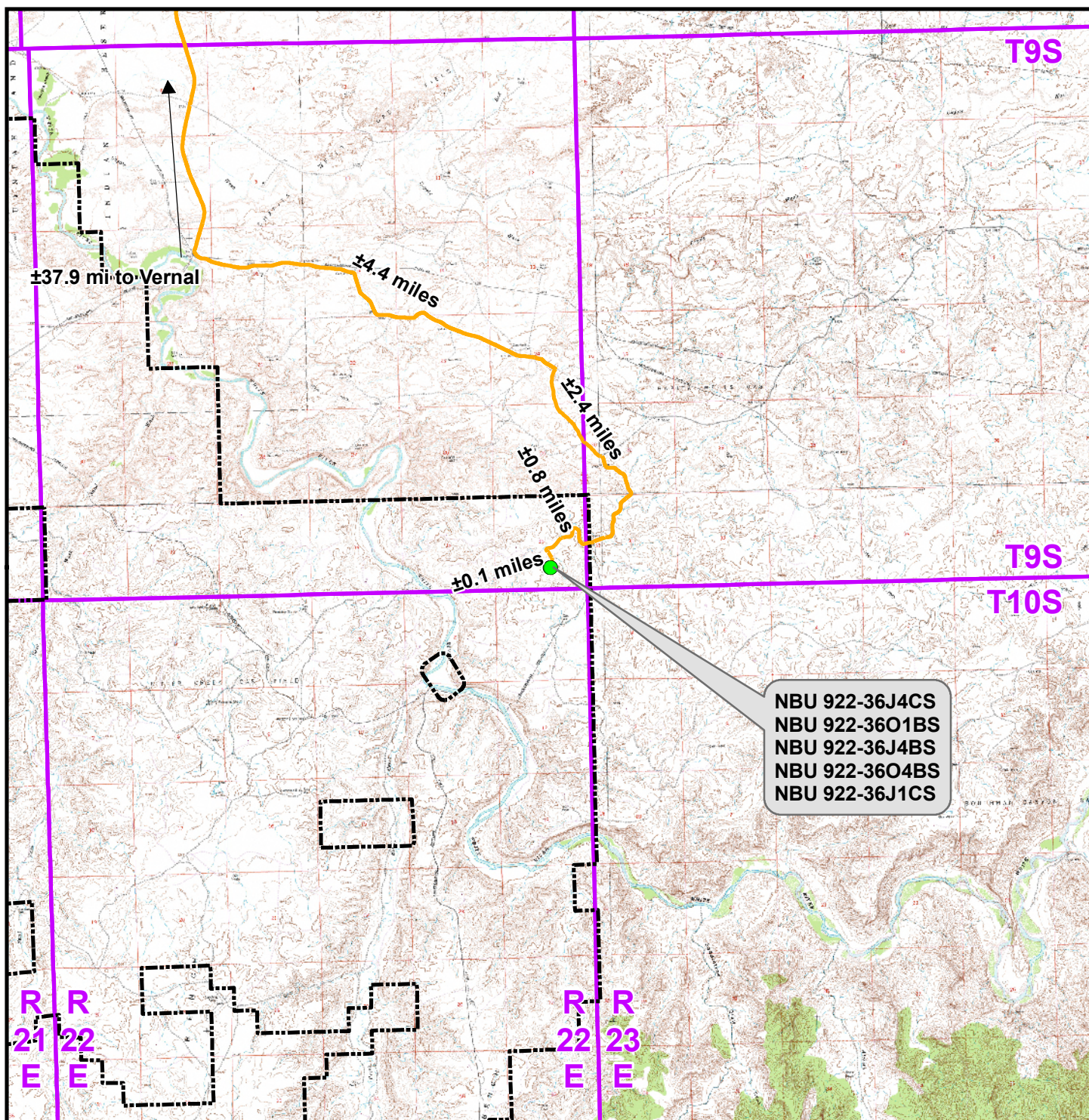
**TIMBERLINE**

(435) 789-1365

ENGINEERING & LAND SURVEYING, INC.  
209 NORTH 300 WEST - VERNAL, UTAH 84078

DATE PHOTOS TAKEN: 11-17-10	PHOTOS TAKEN BY: M.S.B.	SHEET NO:  <b>10</b> 10 OF 17
DATE DRAWN: 11-17-10	DRAWN BY: E.M.S.	
Date Last Revised:		





### Legend

- Proposed Well Location
- Natural Buttes Unit Boundary
- Access Route - Proposed

Distance From Well Pad - NBU 922-36O To Unit Boundary: ±2,075ft

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 922-36O

**TOPO A**  
NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



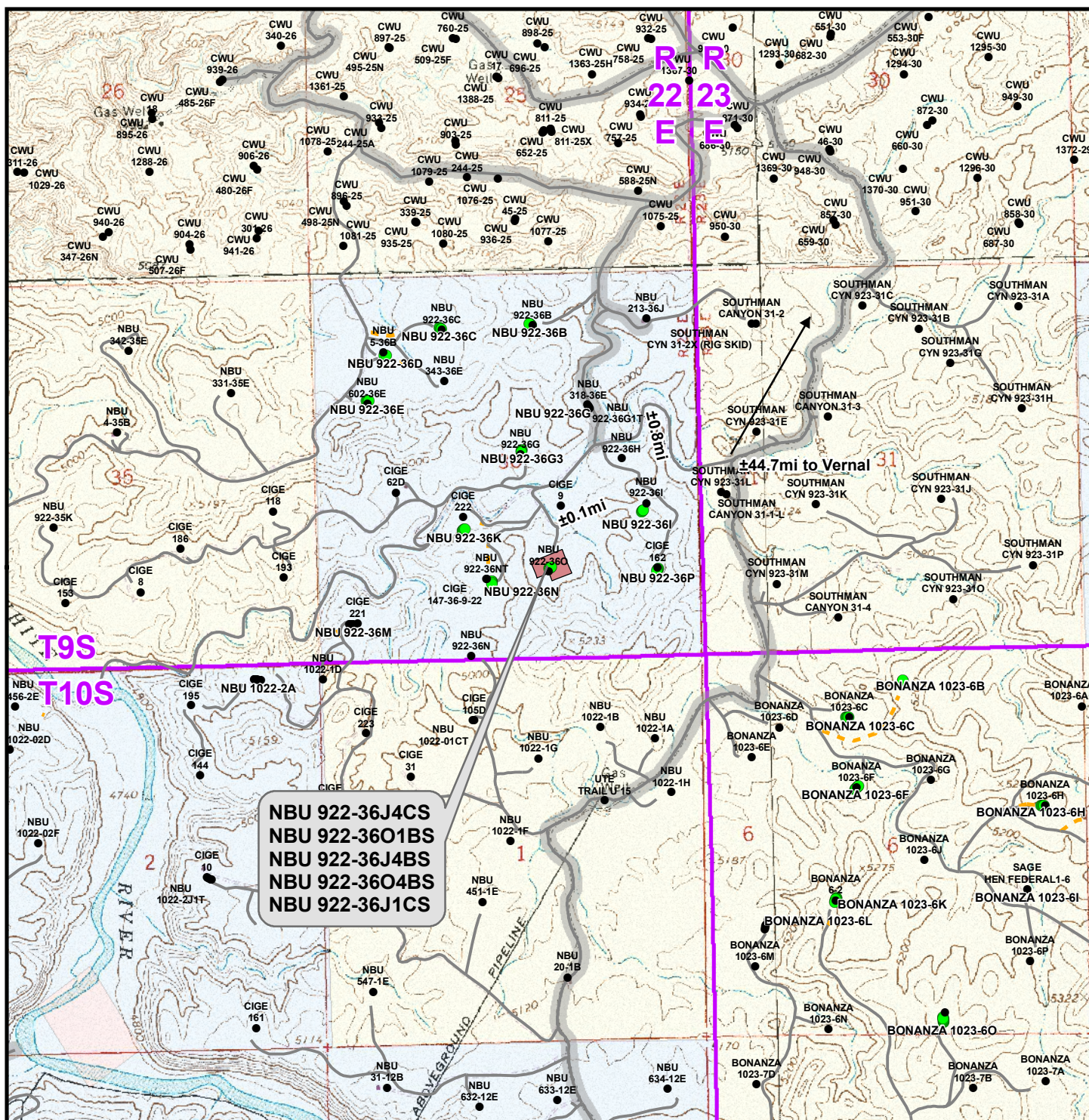
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Drawn: TL	Date: 3 Dec 2010
Revised:	Date:

Sheet No:

**11**

11 of 17





### Legend

- |                   |            |                     |               |                             |           |
|-------------------|------------|---------------------|---------------|-----------------------------|-----------|
| ● Well - Proposed | ■ Well Pad | --- Road - Proposed | ▬ County Road | ■ Bureau of Land Management | ■ State   |
| ● Well - Existing | ---        | ---                 | ---           | ■ Indian Reservation        | □ Private |

Total Proposed Road Length: ±0ft

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

**WELL PAD - NBU 922-36O**

**TOPO B**

**NBU 922-36J4CS,**

**NBU 922-36O1BS, NBU 922-36J4BS,**

**NBU 922-36O4BS & NBU 922-36J1CS**

**LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH**

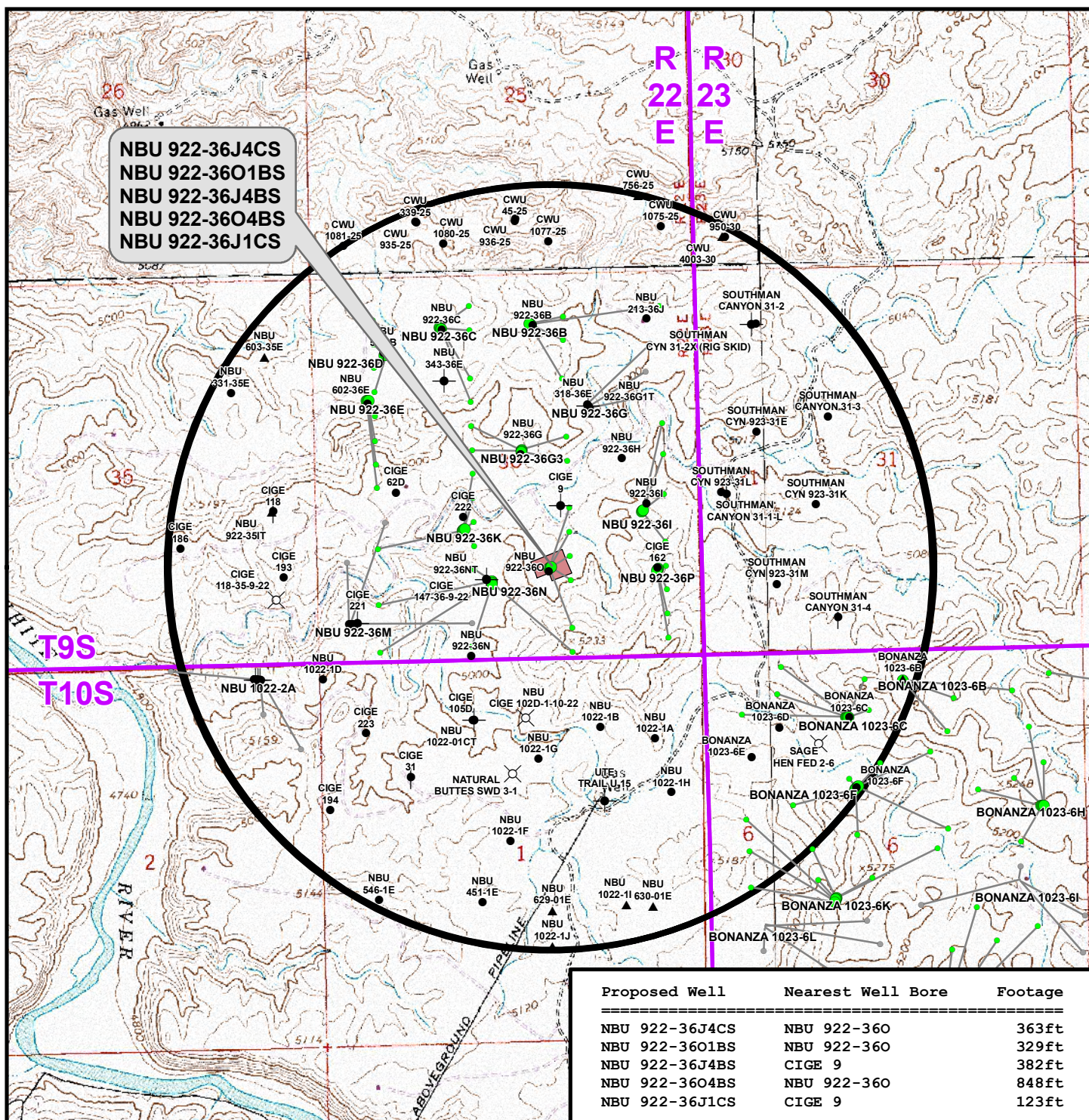


**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No:
Drawn: TL	Date: 3 Dec 2010	<b>12</b> 12 of 17
Revised:	Date:	





### Legend

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- Well - 1 Mile Radius

Well locations derived from State of Utah, Dept. of Natural Resources, Division of Oil, Gas and Mining

- Producing
- ★ Active
- ⊙ Spudded (Drilling commenced: Not yet completed)
- ▲ Approved permit (APD); not yet spudded
- New Permit (Not yet approved or drilled)
- ⊕ Inactive
- ⊗ Drilling Operations Suspended
- Temporarily-Abandoned
- Shut-In
- Plugged and Abandoned
- ⊗ Location Abandoned
- ⊗ Dry hole marker, buried
- ⊗ Returned APD (Unapproved)

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 922-36O

**TOPO C**  
NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
LOCATED IN SECTION 36, T9S, R22E,  
S.L.B.&M., UTAH COUNTY, UTAH

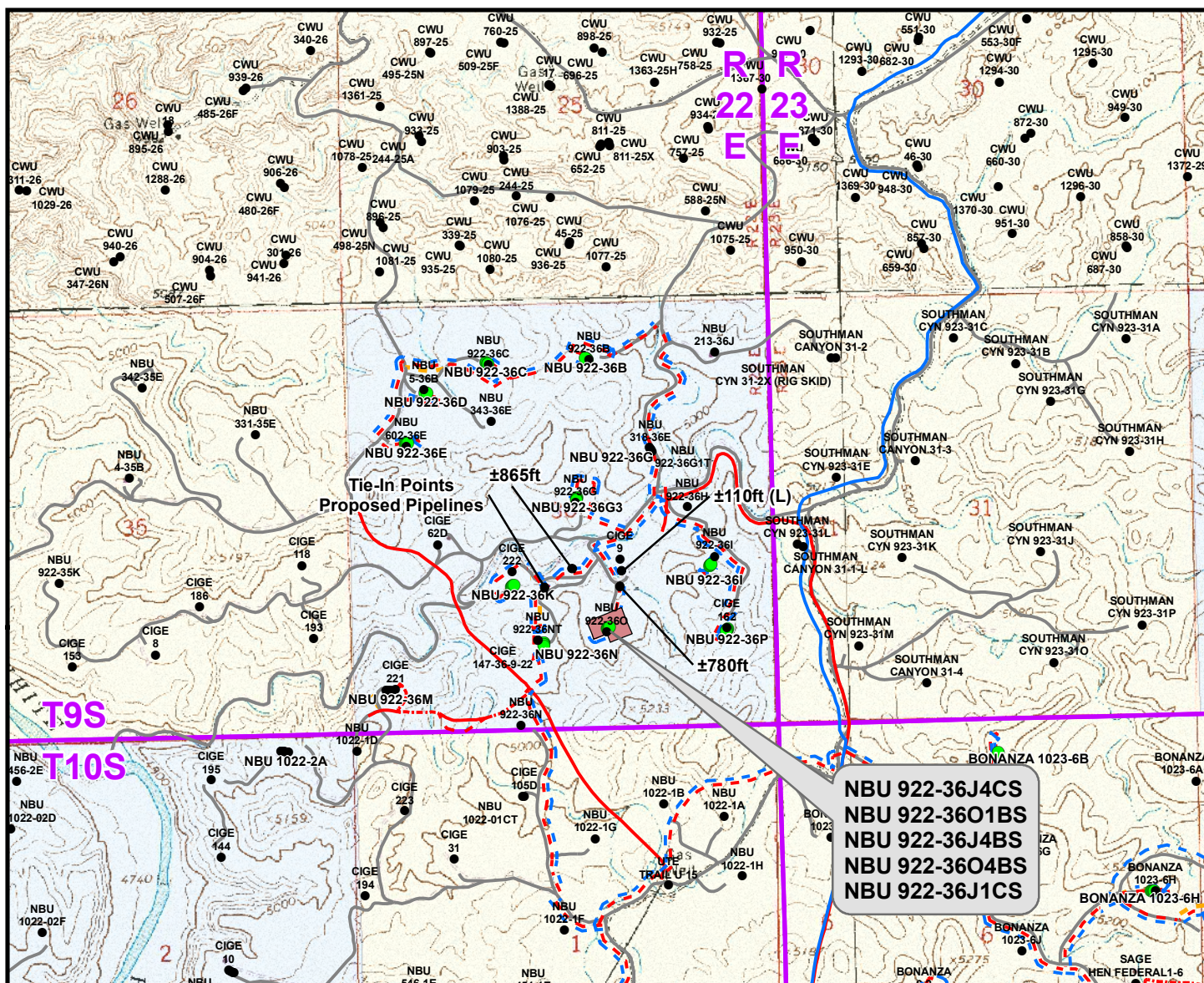
**609**  
**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 2,000ft | NAD83 USP Central  
Drawn: TL | Date: 3 Dec 2010  
Revised: | Date:

Sheet No:  
**13** 13 of 17





Proposed Liquid Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±585ft
Proposed 6" (Max.) (Edge of Pad to East Jr. Compressor Intersection)	±395ft
Proposed 6" (Max.) (East Jr. Compressor Intersection to 36G Intersection)	±385ft
Proposed 6" (Max.) (36G Intersection to 36K Intersection)	±865ft
Proposed 6" (Max.) (East Jr. Compressor to Road Intersection)	±110ft
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±2,340ft</b>

Proposed Gas Pipeline	Length
Proposed 6" (Meter House to Edge of Pad)	±585ft
Proposed 6" (Edge of Pad to 36G Intersection)	±780ft
Proposed 16" (36G Intersection to 36K Intersection)	±865ft
<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±2,230ft</b>

### Legend

- Well - Proposed
- Well - Existing
- Well Pad
- - - Gas Pipeline - Proposed
- - - Gas Pipeline - To Be Upgraded
- - - Gas Pipeline - Existing
- - - Liquid Pipeline - Proposed
- - - Liquid Pipeline - Existing
- - - Road - Proposed
- - - Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

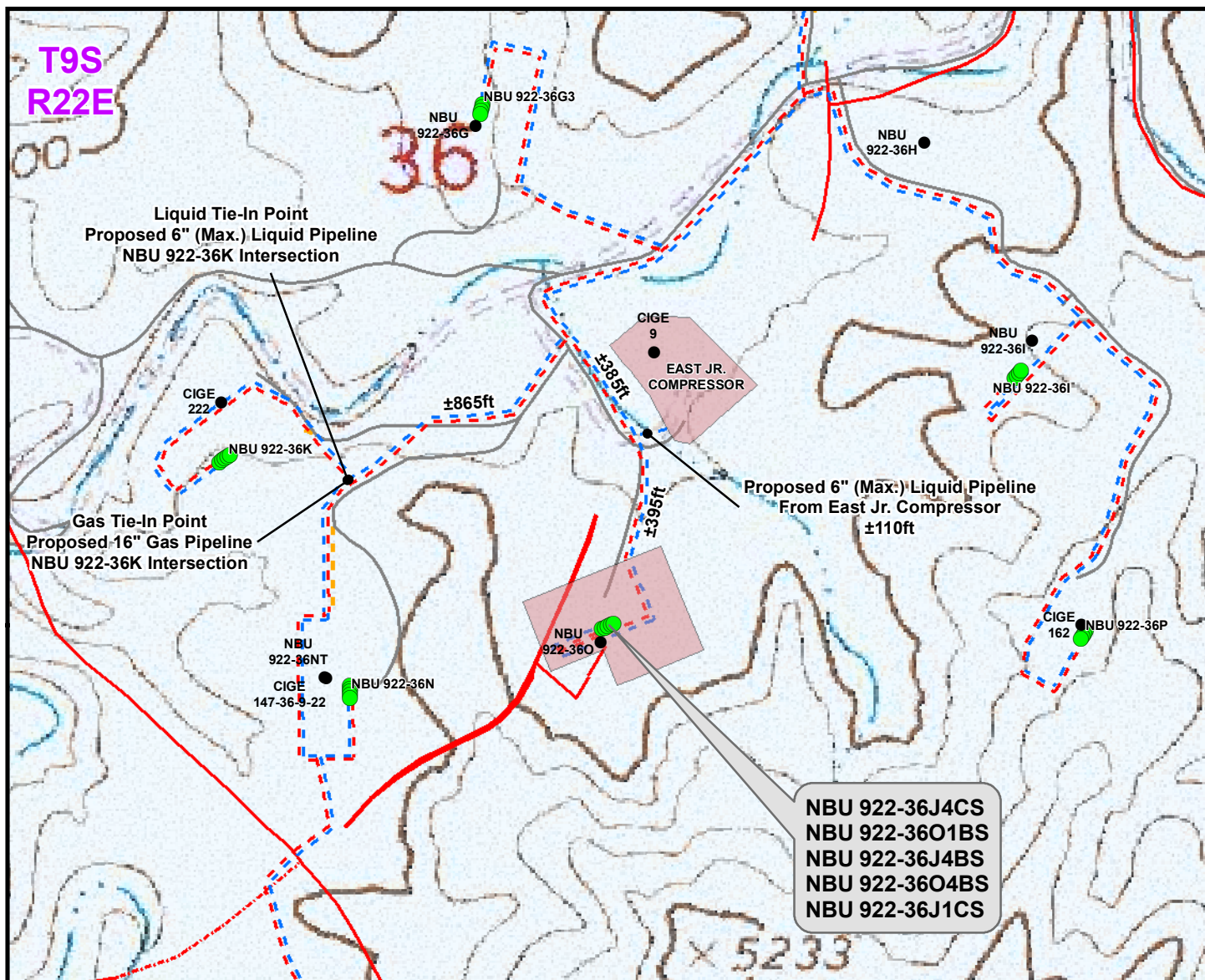
### WELL PAD - NBU 922-36O

**TOPO D**  
**NBU 922-36J4CS,**  
**NBU 922-36O1BS, NBU 922-36J4BS,**  
**NBU 922-36O4BS & NBU 922-36J1CS**  
**LOCATED IN SECTION 36, T9S, R22E,**  
**S.L.B.&M., UTAH COUNTY, UTAH**



Scale: 1" = 2,000ft	NAD83 USP Central	Sheet No:
Drawn: TL	Date: 3 Dec 2010	<b>14</b> 14 of 17
Revised:	Date:	





Proposed Liquid Pipeline	Length	Proposed Gas Pipeline	Length
Proposed 6" (Max.) (Meter House to Edge of Pad)	±585ft	Proposed 6" (Meter House to Edge of Pad)	±585ft
Proposed 6" (Max.) (Edge of Pad to East Jr. Compressor Intersection)	±395ft	Proposed 6" (Edge of Pad to 36G Intersection)	±780ft
Proposed 6" (Max.) (East Jr. Compressor Intersection to 36G Intersection)	±385ft	Proposed 16" (36G Intersection to 36K Intersection)	±865ft
Proposed 6" (Max.) (36G Intersection to 36K Intersection)	±865ft		
Proposed 6" (Max.) (East Jr. Compressor to Road Intersection)	±110ft		
<b>TOTAL PROPOSED LIQUID PIPELINE =</b>	<b>±2,340ft</b>	<b>TOTAL PROPOSED GAS PIPELINE =</b>	<b>±2,230ft</b>

### Legend

- Well - Proposed
- Well - Existing
- Well Pad
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 922-36O

TOPO D2 (PAD & PIPELINE DETAIL)

NBU 922-36J4CS,

NBU 922-36O1BS, NBU 922-36J4BS,

NBU 922-36O4BS & NBU 922-36J1CS

LOCATED IN SECTION 36, T9S, R22E,

S.L.B.&M., UTAH COUNTY, UTAH



**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
Phone (307) 674-0609  
Fax (307) 674-0182



Scale: 1" = 500ft

NAD83 USP Central

Sheet No:

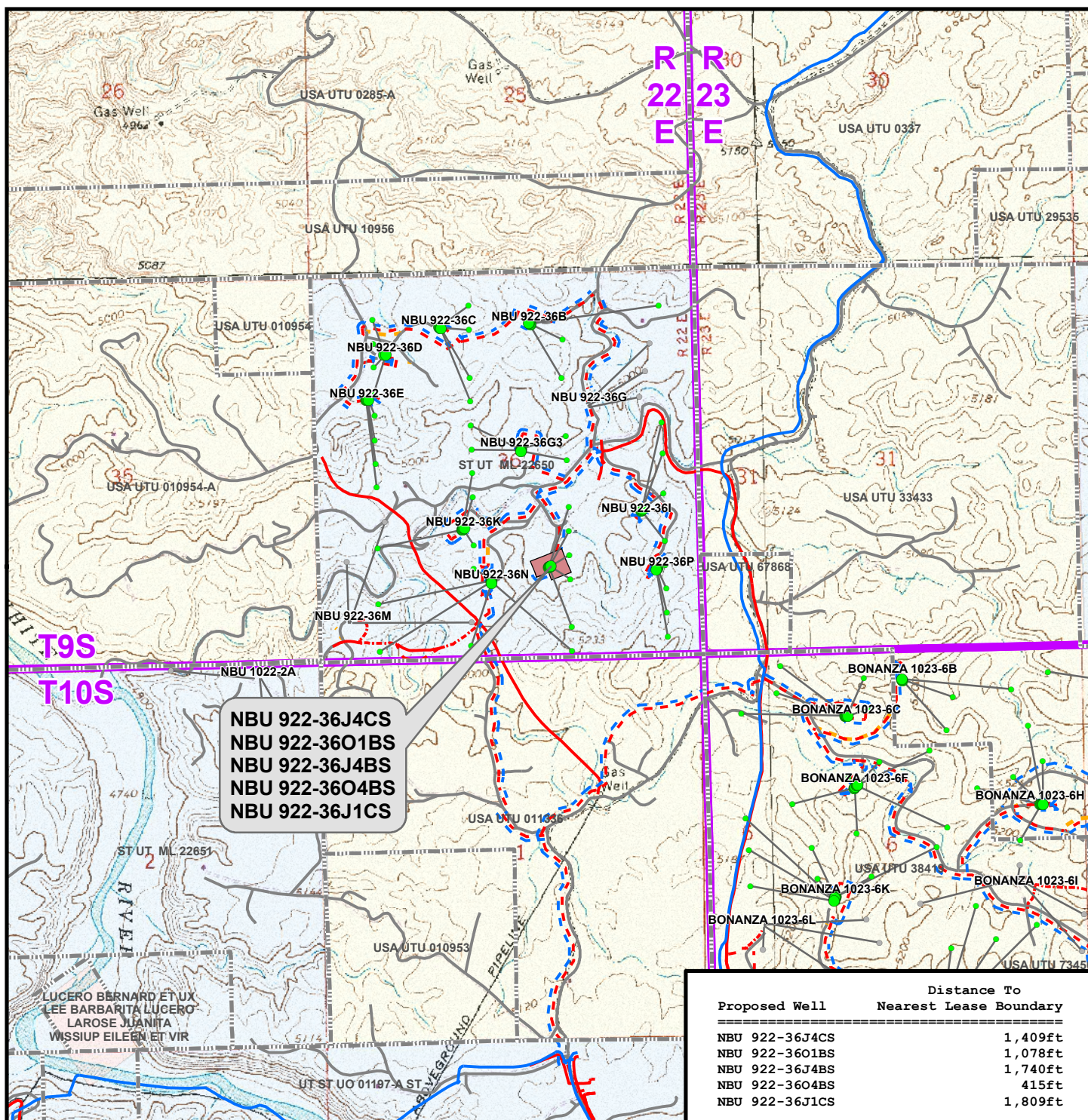
Drawn: TL  
Revised:

Date: 3 Dec 2010  
Date:

**15**

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### Legend

- Well - Proposed
- Bottom Hole - Proposed
- Bottom Hole - Existing
- Well Path
- Well Pad
- ▬ Lease Boundary
- Gas Pipeline - Proposed
- Gas Pipeline - To Be Upgraded
- Gas Pipeline - Existing
- Liquid Pipeline - Proposed
- Liquid Pipeline - Existing
- Road - Proposed
- Road - Existing
- Bureau of Land Management
- Indian Reservation
- State
- Private

**Kerr-McGee Oil & Gas Onshore, LP**  
1099 18th Street, Denver, Colorado 80202

### WELL PAD - NBU 922-36O

**TOPO E**  
**NBU 922-36J4CS,**  
**NBU 922-36O1BS, NBU 922-36J4BS,**  
**NBU 922-36O4BS & NBU 922-36J1CS**  
**LOCATED IN SECTION 36, T9S, R22E,**  
**S.L.B.&M., UTAH COUNTY, UTAH**

**609**  
**CONSULTING, LLC**  
2155 North Main Street  
Sheridan, WY 82801  
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Fax (307) 674-0182



Scale: 1" = 2,000ft | NAD83 USP Central  
Drawn: TL | Date: 3 Dec 2010  
Revised: | Date:

Sheet No:

**16** 16 of 17



**Kerr-McGee Oil & Gas Onshore, LP  
WELL PAD – NBU 922-36O  
WELLS – NBU 922-36J4CS,  
NBU 922-36O1BS, NBU 922-36J4BS,  
NBU 922-36O4BS & NBU 922-36J1CS  
Section 36, T9S, R22E, S.L.B.&M.**

From the intersection of U.S. Highway 40 and 500 East Street in Vernal, Utah, proceed in an easterly then southerly direction along U.S. Highway 40 approximately 3.3 miles to the junction of State Highway 45. Exit right and proceed in a southerly direction along State Highway 45 approximately 20.2 miles to the junction of the Glen Bench Road (County B Road 3260). Exit right and proceed in a southwesterly direction along the Glen Bench Road approximately 14.4 miles to the intersection of the Fidler Road (County B Road 3410) which road intersection is approximately 400 feet northeast of the Mountain Fuel Bridge at the White River. Exit left and proceed in a southeasterly direction along the Fidler Road approximately 4.4 miles to the intersection of the Seven Sisters Road (County B Road 3420). Exit right and proceed in a southerly, then southeasterly direction along the Seven Sisters Road approximately 2.4 miles to a service road to the southwest. Exit right and proceed in a southwesterly, then northerly, then southwesterly, then southeasterly direction along the service road approximately 0.8 miles to an access road to the southeast. Exit left and proceed in a southeasterly, then southwesterly direction along the access road approximately 0.1 miles to the proposed well pad.

Total distance from Vernal, Utah to the proposed well location is approximately 45.6 miles in a southerly direction.

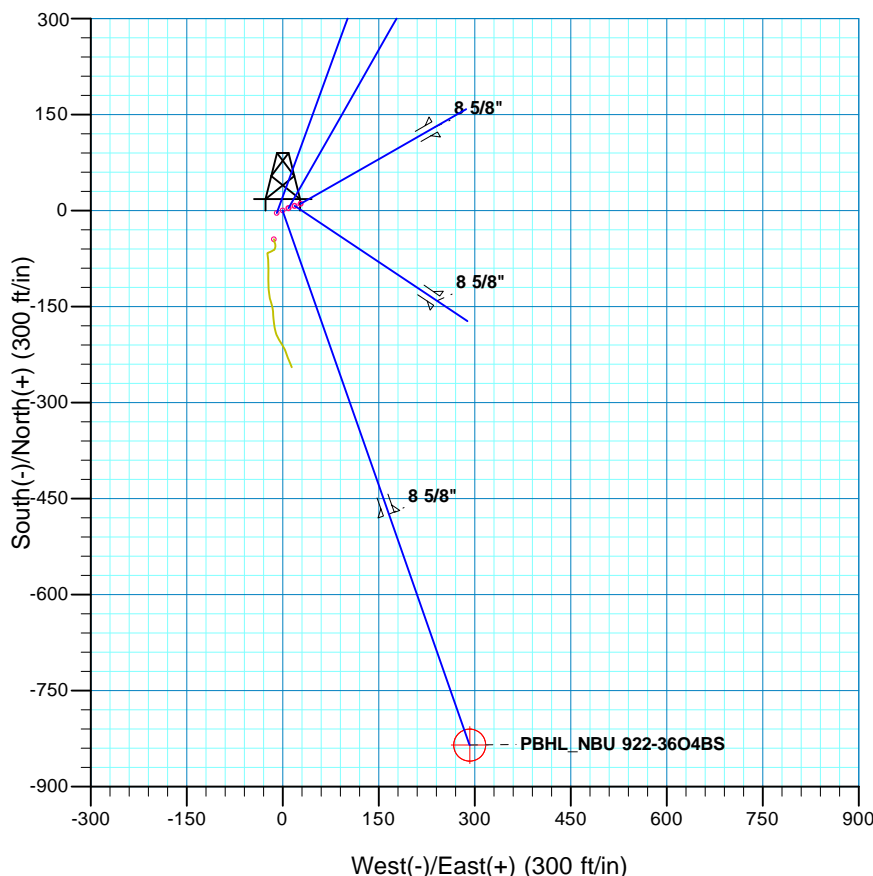
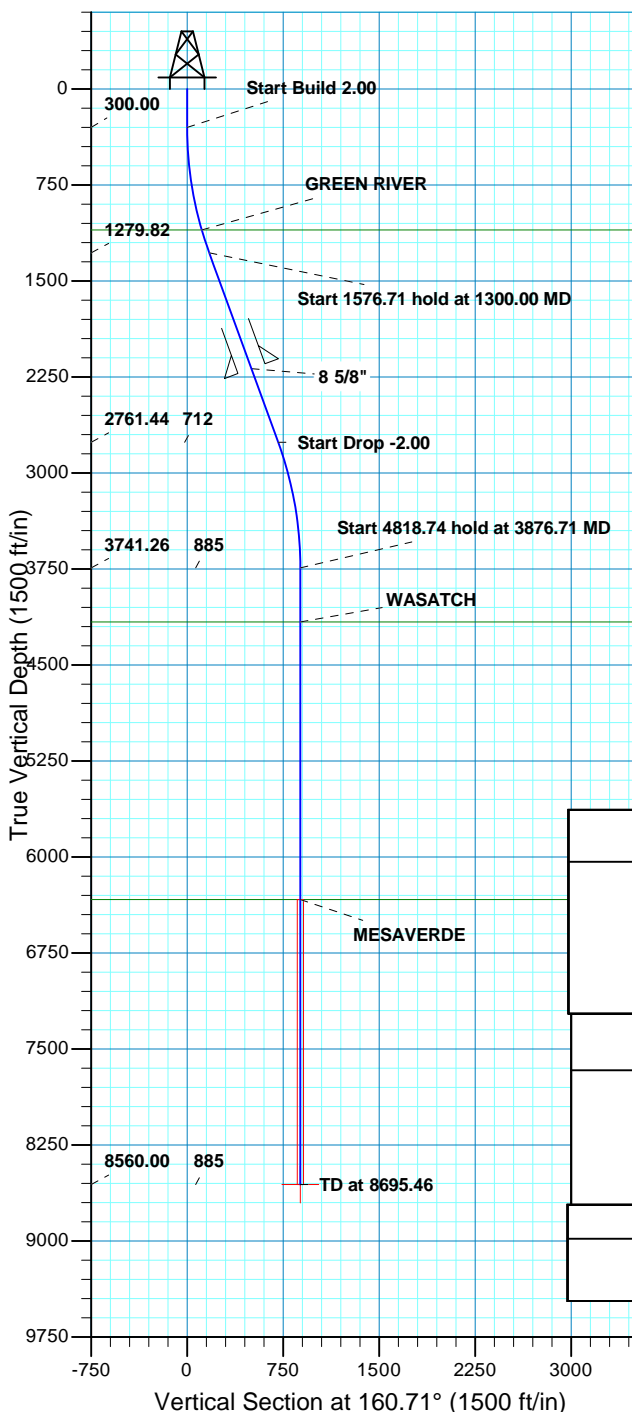
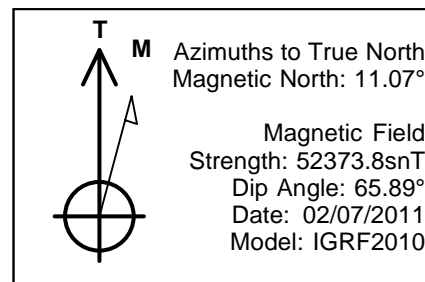
API Well Number: 43047516040000



Object: Uintah County, UT UTM12  
 Site: NBU 922-360 PAD  
 Well: NBU 922-3604BS  
 Wellbore: OH  
 Design: PLAN #1 2-7-11 RHS



WELL DETAILS: NBU 922-3604BS						
GL 4968 & KB 4 @ 4972.00ft (ASSUMED)						
+N/-S 0.00	+E/-W 0.00	Northing 14526025.01	Easting 2092599.82	Latitude 39° 59' 19.331 N	Longitude 109° 23' 8.520 W	
DESIGN TARGET DETAILS						
Name PBHL	TVD 8560.00	+N/-S -835.15	+E/-W 292.23	Northing 14525195.28	Easting 2092907.13	Latitude 39° 59' 11.076 N
- plan hits target center						
					Longitude 109° 23' 4.765 W	Shape Circle (Radius: 25.00)



SECTION DETAILS									
	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00
	1300.00	20.00	160.71	1279.82	-163.07	57.06	2.00	160.71	172.77
	2876.71	20.00	160.71	2761.44	-672.08	235.17	0.00	0.00	712.04
	3876.71	0.00	0.00	3741.26	-835.15	292.23	2.00	180.00	884.80
	8695.46	0.00	0.00	8560.00	-835.15	292.23	0.00	0.00	884.80
PBHL_NBU 922-3604BS									
PROJECT DETAILS: Uintah County, UT UTM12  Geodetic System: Universal Transverse Mercator (US Survey Feet) Datum: NAD 1927 - Western US Ellipsoid: Clarke 1866 Zone: Zone 12N (114 W to 108 W) Location: SECTION 36 T9S R22E System Datum: Mean Sea Level							FORMATION TOP DETAILS		
							TVDPath	MDPath	Formation
							1101.00	1111.82	GREEN RIVER
							4164.00	4299.46	WASATCH
							6333.00	6468.46	MESAVERDE
CASING DETAILS									
	TVD	MD	Name	Size					
	2186.00	2264.34	8 5/8"	8.625					



# **Kerr McGee Oil and Gas Onshore LP**

**Uintah County, UT UTM12**

**NBU 922-360 PAD**

**NBU 922-3604BS**

**OH**

**Plan: PLAN #1 2-7-11 RHS**

## **Standard Planning Report**

**07 February, 2011**





# SDI Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 922-36O4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 2-7-11 RHS		

<b>Project</b>	Uintah County, UT UTM12		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site						NBU 922-36O PAD, SECTION 36 T9S R22E											
Site Position:			Northing:			14,526,021.20 usft			Latitude:			39° 59' 19.295 N					
From:			Lat/Long			Easting:			2,092,590.64 usft			Longitude:			109° 23' 8.639 W		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			1.04		

Well	NBU 922-36O4BS, 1250 FSL 2103 FEL					
Well Position	+N/-S	3.64 ft	Northing:	14,526,025.01 usft	Latitude:	39° 59' 19.331 N
	+E/-W	9.25 ft	Easting:	2,092,599.82 usft	Longitude:	109° 23' 8.520 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,968.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	02/07/2011	11.07	65.89	52,374

<b>Design</b>	PLAN #1 2-7-11 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	160.71

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	20.00	160.71	1,279.82	-163.07	57.06	2.00	2.00	0.00	160.71	
2,876.71	20.00	160.71	2,761.44	-672.08	235.17	0.00	0.00	0.00	0.00	
3,876.71	0.00	0.00	3,741.26	-835.15	292.23	2.00	-2.00	0.00	180.00	
8,695.46	0.00	0.00	8,560.00	-835.15	292.23	0.00	0.00	0.00	0.00	PBHL_NBU 922-36O4



**SDI**  
Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 922-36O4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 2-7-11 RHS		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Start Build 2.00</b>										
400.00	2.00	160.71	399.98	-1.65	0.58	1.75	2.00	2.00	0.00	
500.00	4.00	160.71	499.84	-6.59	2.30	6.98	2.00	2.00	0.00	
600.00	6.00	160.71	599.45	-14.81	5.18	15.69	2.00	2.00	0.00	
700.00	8.00	160.71	698.70	-26.32	9.21	27.88	2.00	2.00	0.00	
800.00	10.00	160.71	797.47	-41.08	14.37	43.52	2.00	2.00	0.00	
900.00	12.00	160.71	895.62	-59.09	20.68	62.60	2.00	2.00	0.00	
1,000.00	14.00	160.71	993.06	-80.32	28.11	85.10	2.00	2.00	0.00	
1,100.00	16.00	160.71	1,089.64	-104.75	36.65	110.98	2.00	2.00	0.00	
1,111.82	16.24	160.71	1,101.00	-107.85	37.74	114.26	2.00	2.00	0.00	
<b>GREEN RIVER</b>										
1,200.00	18.00	160.71	1,185.27	-132.34	46.31	140.21	2.00	2.00	0.00	
1,300.00	20.00	160.71	1,279.82	-163.07	57.06	172.77	2.00	2.00	0.00	
<b>Start 1576.71 hold at 1300.00 MD</b>										
1,400.00	20.00	160.71	1,373.78	-195.36	68.36	206.97	0.00	0.00	0.00	
1,500.00	20.00	160.71	1,467.75	-227.64	79.65	241.17	0.00	0.00	0.00	
1,600.00	20.00	160.71	1,561.72	-259.92	90.95	275.37	0.00	0.00	0.00	
1,700.00	20.00	160.71	1,655.69	-292.20	102.24	309.58	0.00	0.00	0.00	
1,800.00	20.00	160.71	1,749.66	-324.49	113.54	343.78	0.00	0.00	0.00	
1,900.00	20.00	160.71	1,843.63	-356.77	124.84	377.98	0.00	0.00	0.00	
2,000.00	20.00	160.71	1,937.60	-389.05	136.13	412.18	0.00	0.00	0.00	
2,100.00	20.00	160.71	2,031.57	-421.34	147.43	446.38	0.00	0.00	0.00	
2,200.00	20.00	160.71	2,125.54	-453.62	158.72	480.59	0.00	0.00	0.00	
2,264.34	20.00	160.71	2,186.00	-474.39	165.99	502.59	0.00	0.00	0.00	
<b>8 5/8"</b>										
2,300.00	20.00	160.71	2,219.51	-485.90	170.02	514.79	0.00	0.00	0.00	
2,400.00	20.00	160.71	2,313.48	-518.18	181.32	548.99	0.00	0.00	0.00	
2,500.00	20.00	160.71	2,407.45	-550.47	192.61	583.19	0.00	0.00	0.00	
2,600.00	20.00	160.71	2,501.42	-582.75	203.91	617.39	0.00	0.00	0.00	
2,700.00	20.00	160.71	2,595.39	-615.03	215.20	651.60	0.00	0.00	0.00	
2,800.00	20.00	160.71	2,689.35	-647.31	226.50	685.80	0.00	0.00	0.00	
2,876.71	20.00	160.71	2,761.44	-672.08	235.17	712.04	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
2,900.00	19.53	160.71	2,783.36	-679.51	237.77	719.91	2.00	-2.00	0.00	
3,000.00	17.53	160.71	2,878.16	-709.52	248.26	751.70	2.00	-2.00	0.00	
3,100.00	15.53	160.71	2,974.02	-736.38	257.66	780.15	2.00	-2.00	0.00	
3,200.00	13.53	160.71	3,070.82	-760.06	265.95	805.25	2.00	-2.00	0.00	
3,300.00	11.53	160.71	3,168.43	-780.55	273.12	826.95	2.00	-2.00	0.00	
3,400.00	9.53	160.71	3,266.74	-797.80	279.16	845.23	2.00	-2.00	0.00	
3,500.00	7.53	160.71	3,365.63	-811.81	284.06	860.07	2.00	-2.00	0.00	
3,600.00	5.53	160.71	3,464.97	-822.55	287.82	871.45	2.00	-2.00	0.00	
3,700.00	3.53	160.71	3,564.66	-830.01	290.43	879.35	2.00	-2.00	0.00	
3,800.00	1.53	160.71	3,664.55	-834.18	291.89	883.78	2.00	-2.00	0.00	
3,876.71	0.00	0.00	3,741.26	-835.15	292.23	884.80	2.00	-2.00	0.00	
<b>Start 4818.74 hold at 3876.71 MD</b>										
3,900.00	0.00	0.00	3,764.54	-835.15	292.23	884.80	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,864.54	-835.15	292.23	884.80	0.00	0.00	0.00	



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 922-36O4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 2-7-11 RHS		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,100.00	0.00	0.00	3,964.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,200.00	0.00	0.00	4,064.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,299.46	0.00	0.00	4,164.00	-835.15	292.23	884.80	0.00	0.00	0.00
<b>WASATCH</b>									
4,300.00	0.00	0.00	4,164.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,400.00	0.00	0.00	4,264.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,500.00	0.00	0.00	4,364.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,600.00	0.00	0.00	4,464.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,700.00	0.00	0.00	4,564.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,800.00	0.00	0.00	4,664.54	-835.15	292.23	884.80	0.00	0.00	0.00
4,900.00	0.00	0.00	4,764.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,000.00	0.00	0.00	4,864.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,100.00	0.00	0.00	4,964.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,200.00	0.00	0.00	5,064.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,300.00	0.00	0.00	5,164.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,400.00	0.00	0.00	5,264.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,500.00	0.00	0.00	5,364.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,600.00	0.00	0.00	5,464.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,700.00	0.00	0.00	5,564.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,800.00	0.00	0.00	5,664.54	-835.15	292.23	884.80	0.00	0.00	0.00
5,900.00	0.00	0.00	5,764.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,000.00	0.00	0.00	5,864.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,100.00	0.00	0.00	5,964.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,200.00	0.00	0.00	6,064.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,300.00	0.00	0.00	6,164.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,400.00	0.00	0.00	6,264.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,468.46	0.00	0.00	6,333.00	-835.15	292.23	884.80	0.00	0.00	0.00
<b>MESAVERDE</b>									
6,500.00	0.00	0.00	6,364.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,600.00	0.00	0.00	6,464.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,700.00	0.00	0.00	6,564.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,800.00	0.00	0.00	6,664.54	-835.15	292.23	884.80	0.00	0.00	0.00
6,900.00	0.00	0.00	6,764.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,000.00	0.00	0.00	6,864.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,100.00	0.00	0.00	6,964.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,200.00	0.00	0.00	7,064.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,300.00	0.00	0.00	7,164.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,400.00	0.00	0.00	7,264.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,500.00	0.00	0.00	7,364.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,600.00	0.00	0.00	7,464.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,700.00	0.00	0.00	7,564.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,800.00	0.00	0.00	7,664.54	-835.15	292.23	884.80	0.00	0.00	0.00
7,900.00	0.00	0.00	7,764.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,000.00	0.00	0.00	7,864.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,100.00	0.00	0.00	7,964.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,200.00	0.00	0.00	8,064.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,300.00	0.00	0.00	8,164.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,400.00	0.00	0.00	8,264.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,500.00	0.00	0.00	8,364.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,600.00	0.00	0.00	8,464.54	-835.15	292.23	884.80	0.00	0.00	0.00
8,695.46	0.00	0.00	8,560.00	-835.15	292.23	884.80	0.00	0.00	0.00
<b>TD at 8695.46 - PBHL_NBU 922-36O4BS</b>									



# SDI Planning Report



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Project:</b>	Uintah County, UT UTM12	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>North Reference:</b>	True
<b>Well:</b>	NBU 922-36O4BS	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 2-7-11 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_NBU 922-36O4B	0.00	0.00	8,560.00	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
- plan hits target center									
- Circle (radius 25.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,264.34	2,186.00	8 5/8"	8.625	11.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,111.82	1,101.00	GREEN RIVER			
4,299.46	4,164.00	WASATCH			
6,468.46	6,333.00	MESAVERDE			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300.00	300.00	0.00	0.00	Start Build 2.00	
1,300.00	1,279.82	-163.07	57.06	Start 1576.71 hold at 1300.00 MD	
2,876.71	2,761.44	-672.08	235.17	Start Drop -2.00	
3,876.71	3,741.26	-835.15	292.23	Start 4818.74 hold at 3876.71 MD	
8,695.46	8,560.00	-835.15	292.23	TD at 8695.46	



# **Kerr McGee Oil and Gas Onshore LP**

**Uintah County, UT UTM12  
NBU 922-360 PAD  
NBU 922-3604BS**

**OH**

**Plan: PLAN #1 2-7-11 RHS**

## **Survey Report - Geographic**

**07 February, 2011**







# SDI

## Survey Report - Geographic



<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 2-7-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	Uintah County, UT UTM12		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site	NBU 922-36O PAD, SECTION 36 T9S R22E				
Site Position:		Northing:	14,526,021.20 usft	Latitude:	39° 59' 19.295 N
From:	Lat/Long	Easting:	2,092,590.64 usft	Longitude:	109° 23' 8.639 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	1.04 °

Well	NBU 922-36O4BS, 1250 FSL 2103 FEL					
Well Position	+N/-S	0.00 ft	Northing:	14,526,025.01 usft	Latitude:	39° 59' 19.331 N
	+E/-W	0.00 ft	Easting:	2,092,599.82 usft	Longitude:	109° 23' 8.520 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,968.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	02/07/2011	11.07	65.89	52,374

<b>Design</b>	PLAN #1 2-7-11 RHS				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	160.71	

<b>Survey Tool Program</b>	<b>Date</b>	02/07/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	8,695.46	PLAN #1 2-7-11 RHS (OH)	MWD SDI	MWD - Standard ver 1.0.1	

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W
100.00	0.00	0.00	100.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W
200.00	0.00	0.00	200.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W
300.00	0.00	0.00	300.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W
Start Build 2.00									
400.00	2.00	160.71	399.98	-1.65	0.58	14,526,023.38	2,092,600.43	39° 59' 19.315 N	109° 23' 8.513 W
500.00	4.00	160.71	499.84	-6.59	2.30	14,526,018.47	2,092,602.24	39° 59' 19.266 N	109° 23' 8.490 W
600.00	6.00	160.71	599.45	-14.81	5.18	14,526,010.30	2,092,605.27	39° 59' 19.184 N	109° 23' 8.453 W
700.00	8.00	160.71	698.70	-26.32	9.21	14,525,998.87	2,092,609.50	39° 59' 19.071 N	109° 23' 8.402 W
800.00	10.00	160.71	797.47	-41.08	14.37	14,525,984.20	2,092,614.94	39° 59' 18.925 N	109° 23' 8.335 W



# SDI

## Survey Report - Geographic



<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 2-7-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
900.00	12.00	160.71	895.62	-59.09	20.68	14,525,966.31	2,092,621.56	39° 59' 18.747 N	109° 23' 8.254 W
1,000.00	14.00	160.71	993.06	-80.32	28.11	14,525,945.21	2,092,629.37	39° 59' 18.537 N	109° 23' 8.159 W
1,100.00	16.00	160.71	1,089.64	-104.75	36.65	14,525,920.94	2,092,638.36	39° 59' 18.295 N	109° 23' 8.049 W
1,111.82	16.24	160.71	1,101.00	-107.85	37.74	14,525,917.87	2,092,639.50	39° 59' 18.265 N	109° 23' 8.035 W
<b>GREEN RIVER</b>									
1,200.00	18.00	160.71	1,185.27	-132.34	46.31	14,525,893.53	2,092,648.52	39° 59' 18.023 N	109° 23' 7.925 W
1,300.00	20.00	160.71	1,279.82	-163.07	57.06	14,525,863.00	2,092,659.82	39° 59' 17.719 N	109° 23' 7.787 W
<b>Start 1576.71 hold at 1300.00 MD</b>									
1,400.00	20.00	160.71	1,373.78	-195.36	68.36	14,525,830.93	2,092,671.70	39° 59' 17.400 N	109° 23' 7.642 W
1,500.00	20.00	160.71	1,467.75	-227.64	79.65	14,525,798.85	2,092,683.58	39° 59' 17.081 N	109° 23' 7.497 W
1,600.00	20.00	160.71	1,561.72	-259.92	90.95	14,525,766.78	2,092,695.46	39° 59' 16.762 N	109° 23' 7.351 W
1,700.00	20.00	160.71	1,655.69	-292.20	102.24	14,525,734.71	2,092,707.34	39° 59' 16.443 N	109° 23' 7.206 W
1,800.00	20.00	160.71	1,749.66	-324.49	113.54	14,525,702.63	2,092,719.22	39° 59' 16.124 N	109° 23' 7.061 W
1,900.00	20.00	160.71	1,843.63	-356.77	124.84	14,525,670.56	2,092,731.10	39° 59' 15.804 N	109° 23' 6.916 W
2,000.00	20.00	160.71	1,937.60	-389.05	136.13	14,525,638.49	2,092,742.98	39° 59' 15.485 N	109° 23' 6.771 W
2,100.00	20.00	160.71	2,031.57	-421.34	147.43	14,525,606.42	2,092,754.85	39° 59' 15.166 N	109° 23' 6.626 W
2,200.00	20.00	160.71	2,125.54	-453.62	158.72	14,525,574.34	2,092,766.73	39° 59' 14.847 N	109° 23' 6.481 W
2,264.34	20.00	160.71	2,186.00	-474.39	165.99	14,525,553.71	2,092,774.38	39° 59' 14.642 N	109° 23' 6.387 W
<b>8 5/8"</b>									
2,300.00	20.00	160.71	2,219.51	-485.90	170.02	14,525,542.27	2,092,778.61	39° 59' 14.528 N	109° 23' 6.335 W
2,400.00	20.00	160.71	2,313.48	-518.18	181.32	14,525,510.20	2,092,790.49	39° 59' 14.209 N	109° 23' 6.190 W
2,500.00	20.00	160.71	2,407.45	-550.47	192.61	14,525,478.12	2,092,802.37	39° 59' 13.890 N	109° 23' 6.045 W
2,600.00	20.00	160.71	2,501.42	-582.75	203.91	14,525,446.05	2,092,814.25	39° 59' 13.571 N	109° 23' 5.900 W
2,700.00	20.00	160.71	2,595.39	-615.03	215.20	14,525,413.98	2,092,826.13	39° 59' 13.252 N	109° 23' 5.755 W
2,800.00	20.00	160.71	2,689.35	-647.31	226.50	14,525,381.91	2,092,838.01	39° 59' 12.933 N	109° 23' 5.610 W
2,876.71	20.00	160.71	2,761.44	-672.08	235.17	14,525,357.30	2,092,847.12	39° 59' 12.688 N	109° 23' 5.498 W
<b>Start Drop -2.00</b>									
2,900.00	19.53	160.71	2,783.36	-679.51	237.77	14,525,349.92	2,092,849.85	39° 59' 12.614 N	109° 23' 5.465 W
3,000.00	17.53	160.71	2,878.16	-709.52	248.26	14,525,320.11	2,092,860.89	39° 59' 12.318 N	109° 23' 5.330 W
3,100.00	15.53	160.71	2,974.02	-736.38	257.66	14,525,293.42	2,092,870.78	39° 59' 12.052 N	109° 23' 5.209 W
3,200.00	13.53	160.71	3,070.82	-760.06	265.95	14,525,269.89	2,092,879.49	39° 59' 11.818 N	109° 23' 5.103 W
3,300.00	11.53	160.71	3,168.43	-780.55	273.12	14,525,249.54	2,092,887.03	39° 59' 11.616 N	109° 23' 5.011 W
3,400.00	9.53	160.71	3,266.74	-797.80	279.16	14,525,232.40	2,092,893.38	39° 59' 11.445 N	109° 23' 4.933 W
3,500.00	7.53	160.71	3,365.63	-811.81	284.06	14,525,218.48	2,092,898.53	39° 59' 11.307 N	109° 23' 4.870 W
3,600.00	5.53	160.71	3,464.97	-822.55	287.82	14,525,207.81	2,092,902.48	39° 59' 11.201 N	109° 23' 4.822 W
3,700.00	3.53	160.71	3,564.66	-830.01	290.43	14,525,200.40	2,092,905.23	39° 59' 11.127 N	109° 23' 4.788 W
3,800.00	1.53	160.71	3,664.55	-834.18	291.89	14,525,196.25	2,092,906.77	39° 59' 11.086 N	109° 23' 4.770 W
3,876.71	0.00	0.00	3,741.26	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
<b>Start 4818.74 hold at 3876.71 MD</b>									
3,900.00	0.00	0.00	3,764.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,000.00	0.00	0.00	3,864.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,100.00	0.00	0.00	3,964.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,200.00	0.00	0.00	4,064.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,299.46	0.00	0.00	4,164.00	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
<b>WASATCH</b>									
4,300.00	0.00	0.00	4,164.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,400.00	0.00	0.00	4,264.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,500.00	0.00	0.00	4,364.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,600.00	0.00	0.00	4,464.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,700.00	0.00	0.00	4,564.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,800.00	0.00	0.00	4,664.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
4,900.00	0.00	0.00	4,764.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W



# SDI

## Survey Report - Geographic



<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 2-7-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	0.00	0.00	4,864.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,100.00	0.00	0.00	4,964.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,200.00	0.00	0.00	5,064.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,300.00	0.00	0.00	5,164.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,400.00	0.00	0.00	5,264.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,500.00	0.00	0.00	5,364.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,600.00	0.00	0.00	5,464.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,700.00	0.00	0.00	5,564.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,800.00	0.00	0.00	5,664.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
5,900.00	0.00	0.00	5,764.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,000.00	0.00	0.00	5,864.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,100.00	0.00	0.00	5,964.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,200.00	0.00	0.00	6,064.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,300.00	0.00	0.00	6,164.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,400.00	0.00	0.00	6,264.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,468.46	0.00	0.00	6,333.00	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
<b>MESAVERDE</b>									
6,500.00	0.00	0.00	6,364.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,600.00	0.00	0.00	6,464.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,700.00	0.00	0.00	6,564.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,800.00	0.00	0.00	6,664.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
6,900.00	0.00	0.00	6,764.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,000.00	0.00	0.00	6,864.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,100.00	0.00	0.00	6,964.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,200.00	0.00	0.00	7,064.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,300.00	0.00	0.00	7,164.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,400.00	0.00	0.00	7,264.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,500.00	0.00	0.00	7,364.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,600.00	0.00	0.00	7,464.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,700.00	0.00	0.00	7,564.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,800.00	0.00	0.00	7,664.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
7,900.00	0.00	0.00	7,764.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,000.00	0.00	0.00	7,864.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,100.00	0.00	0.00	7,964.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,200.00	0.00	0.00	8,064.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,300.00	0.00	0.00	8,164.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,400.00	0.00	0.00	8,264.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,500.00	0.00	0.00	8,364.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,600.00	0.00	0.00	8,464.54	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
8,695.46	0.00	0.00	8,560.00	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W

TD at 8695.46 - PBHL\_NBU 922-36O4BS

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_NBU 922-36O4B:	0.00	0.00	8,560.00	-835.15	292.23	14,525,195.29	2,092,907.12	39° 59' 11.076 N	109° 23' 4.765 W
- plan hits target center									
- Circle (radius 25.00)									



**SDI**  
Survey Report - Geographic



<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 4 @ 4972.00ft (ASSUMED)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	PLAN #1 2-7-11 RHS	<b>Database:</b>	EDM5000-RobertS-Local

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,264.34	2,186.00	8 5/8"	8.625	11.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,111.82	1,101.00	GREEN RIVER			
4,299.46	4,164.00	WASATCH			
6,468.46	6,333.00	MESAVERDE			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300	300	0	0	Start Build 2.00	
1300	1280	-163	57	Start 1576.71 hold at 1300.00 MD	
2877	2761	-672	235	Start Drop -2.00	
3877	3741	-835	292	Start 4818.74 hold at 3876.71 MD	
8695	8560	-835	292	TD at 8695.46	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

**NBU 922-36J1CS**

Surface: 1247' FSL 2113' FEL (SW/4SE/4)  
BHL: 2071' FSL 1809' FEL (NW/4SE/4)

**NBU 922-36J4BS**

Surface: 1254' FSL 2094' FEL (SW/4SE/4)  
BHL: 1740' FSL 1816' FEL (NW/4SE/4)

**NBU 922-36J4CS**

Surface: 1261' FSL 2075' FEL (SW/4SE/4)  
BHL: 1409' FSL 1816' FEL (NW/4SE/4)

**NBU 922-36O1BS**

Surface: 1257' FSL 2085' FEL (SW/4SE/4)  
BHL: 1078' FSL 1815' FEL (SW/4SE/4)

**NBU 922-36O4BS**

Surface: 1250' FSL 2103' FEL (SW/4SE/4)  
BHL: 415' FSL 1814' FEL (SW/4SE/4)

Pad: NBU 922-36O Pad  
Section 36 T9S R22E  
Mineral Lease: ML-22650

Uintah County, Utah  
Operator: Kerr-McGee Oil & Gas Onshore LP

***MULTI-POINT SURFACE USE PLAN of OPERATIONS (SUPO)***

This SUPO contains surface operating procedures for Kerr-McGee Oil & Gas Onshore LP (KMG), a wholly owned subsidiary of Anadarko Petroleum Corporation (APC) pertaining to actions that involve the State of Utah School and Institutional Trust Lands Administration (SITLA) in the development of minerals leased to APC/KMG (including, but not limited to, APDs/SULAs/ROEs/ROWs and/or easements).

See associated Utah Division of Oil, Gas, and Mining (UDOGM) Form 3(s), plats, maps, and other attachments for site-specific information on projects represented herein.

In accordance with Utah Oil & Gas Conservation Rule R649-3-11 pertaining to Directional Drilling, these wells will be directionally drilled. Refer to Topo Map A for directions to the location and Topo Maps A and B for location of access roads within a 2-mile radius.

**A. Existing Roads:**

Existing roads consist of county roads and improved/unimproved lease roads. KMG will maintain existing roads in a condition that is the same as or better than before operations began and in a safe and usable

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**Surface Use Plan of Operations  
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condition. Maintenance of existing roads will continue until final abandonment and reclamation of well pads and/or other facilities. The road maintenance may include, but is not limited to, blading, ditching, culvert installation/cleanout, surfacing, and dust control.

Typically, roads, gathering lines and electrical distribution lines will occupy common disturbance corridors and roadways will be used as working space. All disturbances located in the same corridor will overlap each other to the maximum extent possible; in no case will the maximum disturbance width of the access road and utility corridors exceed 50', unless otherwise approved.

**B. Planned Access Roads:**

No new access road is proposed. (see Topo Map B). Applicable Uintah County encroachment and/or pipeline crossing permits will be obtained prior to construction/development. No other pipelines will be crossed at this location.

If there are roads that are new or to be reconstructed, they will be located, designed, and maintained to meet the standards of SITLA and other commonly accepted Best Management Practices (BMPs). If a new road/corridor were to cross a water of the United States, KMG will adhere to the requirements of applicable Nationwide or Individual Permits of the Department of Army Corps of Engineers.

During the onsite, turnouts, major cut and fills, culverts, bridges, gates, cattle guards, low water crossings, or modifications needed to existing infrastructure/facilities were determined, as applicable, are typically shown on attached Exhibits and Topo maps.

**C. Location of Existing and Proposed Facilities:**

This pad will expand the existing pad for the NBU 922-36O. The NBU 922-36O well location is a vertical producing well according to Utah Division of Oil, Gas and Mining (UDOGM) records as of May 5, 2011.

Production facilities (see Well Pad Design Summary and Facilities Diagram):

Production facilities will be installed on the disturbed portion of the well pad and may include bermed components (typically excluding dehy's and/or separators) that contain fluids (i.e. production tanks, produced liquids tanks). The berms will be constructed of compacted subsoil or corrugated metal, impervious, designed to hold 110% of the capacity of the largest tank, and be independent of the back cut. All permanent (on-site six months or longer) above ground structures constructed or installed, including pumping units, will be painted a flat, non-reflective, earth-tone color chosen at the onsite in coordination with SITLA.

Production tanks will be constructed, maintained, and operated to prevent unauthorized surface or subsurface discharges of liquids and to prevent livestock or wildlife entry. The tanks are not to be used for disposal of liquids from additional sources without prior approval of UDOGM.

**Gathering facilities:**

The following pipeline transmission facilities will apply if the well is productive (see Topo D):

The total gas gathering (steel line pipe with fusion bond epoxy coating) pipeline distances from the meter to the tie in point is  $\pm 2,230'$  and the individual segments are broken up as follows:

- $\pm 585'$  (0.11 miles) –New 6" buried gas pipeline from the meter to the edge of the pad. Please refer to Topo D2.
- $\pm 780'$  (0.15 miles) –New 6" buried gas pipeline from the edge of pad to tie-in to the proposed 16" buried gas pipeline at the 36G intersection. Please refer to Topo D.
- $\pm 865'$  (0.16 miles) –New 16" buried gas pipeline from the proposed 36G intersection to the proposed 36K intersection. Please refer to Topo D.

The total liquid gathering pipeline distance from the separator to the tie in point is  $\pm 2,340'$  and the individual segments are broken up as follows:

- $\pm 585'$  (0.11 miles) –New 6" buried liquid pipeline from the separator to the edge of the pad. Please refer to Topo D2.
- $\pm 395'$  (0.07 miles) –New 6" buried liquid pipeline from the edge of pad to the East Jr. Compressor intersection. Please refer to Topo D2.
- $\pm 385'$  (0.07 miles) –New 6" buried liquid pipeline from the East Jr. Compressor intersection to tie-in to the proposed 6" buried liquid pipeline at the 36G intersection. Please refer to Topo D.
- $\pm 865'$  (0.16 miles) –New 6" buried liquid pipeline from the proposed 36G intersection to the proposed 36K intersection. Please refer to Topo D.
- $\pm 110'$  (0.02 miles) –New 6" buried liquid pipeline from the East Jr. Compressor to the road intersection. Please refer to Topo D2.

The liquid gathering lines will be made of polyethylene or a composite polyethylene/steel or polyethylene/fiberglass that is not subject to internal or external pipe corrosion. The content of the produced fluids to be transferred by the liquid gathering system will be approximately 92% produced water and 8% condensate. Trunk line valve connections for the water gathering system will be below ground but accessible from the surface in order to prevent freezing during winter time.

The proposed pipelines will be buried and will include gas gathering and liquid gathering pipelines in the same trench. Where the pipeline is adjacent to the road or well pad, the road and/or well pad will be utilized for construction activities and staging. KMG requests a permanent 30' right-of-way adjacent to the road for life-of-project for maintenance, repairs, and/or upgrades, no additional right-of-way will be needed beyond the 30'. Where the pipeline is not adjacent to the road or well pad, KMG requests a temporary 45' construction right-of-way and 30' permanent right-of-way.

The proposed trench width for the pipeline would range from 18-48 inches and will be excavated to a depth of 48 to 60 inches of normal soil cover or 24 inches of cover in consolidated rock. During construction blasting may occur along the proposed right-of-way where trenching equipment cannot cut into the bedrock. Large debris and rocks removed from the earth during trenching and blasting that could not be returned to the trench would be distributed evenly and naturally in the project area. The proposed pipelines will be pressure tested

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36J4CS/ 36O1BS/ 36O4BS**

**Surface Use Plan of Operations  
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pneumatically (depending on size) or with fluids (either fresh or produced). If fluids are used, there will be no discharge to the surface.

Pipeline signs will be installed along the right-of-way to indicate the pipeline proximity and ownership, as well as to provide emergency contact phone numbers. Above ground valves, T's, and/or cathodic protection will be installed at various locations for connection, corrosion prevention and/or for safety purposes.

**D. Location and Type of Water Supply:**

Water for drilling purposes will be obtained from one of the following sources:

- Dalbo Inc.'s underground well located in Ouray, Utah, Sec. 32 T4S R3E, Water User Claim number 43-8496, application number 53617.
- Price Water Pumping Inc. Green River and White River, various sources, Water Right Number 49-1659, application number: a35745.

Water will be hauled to location over the roads marked on Maps A and B.

No water well is to be drilled on this lease.

**E. Source of Construction Materials:**

Construction operations will typically be completed with native materials found on location. If needed, construction materials that must be imported to the site (mineral material aggregate, soils or materials suitable for fill/surfacing) will be obtained from a nearby permitted source and described in subsequent Sundry requests. No construction materials will be removed from State lands without prior approval from SITLA.

**F. Methods of Handling Waste Materials:**

Should the well be productive, produced water will be contained in a water tank and will be transported by pipeline and/or truck to an approved disposal sites facilities and/or Salt Water Disposal (SWD) injection well. Currently, those facilities are:

RNI in Sec. 5 T9S R22E  
Ace Oilfield in Sec. 2 T6S R20E  
MC&MC in Sec. 12 T6S R19E  
Pipeline Facility in Sec. 36 T9S R20E  
Goat Pasture Evaporation Pond in SW/4 Sec. 16 T10S R22E  
Bonanza Evaporation Pond in Sec. 2 T10S R23E  
Ouray #1 SWD in Sec. 1 T9S R21E  
NBU 159 SWD in Sec. 35 T9S R21E  
CIGE 112D SWD in Sec. 19 T9S R21E



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36J4CS/ 36O1BS/ 36O4BS**

**Surface Use Plan of Operations  
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CIGE 114 SWD in Sec. 34 T9S R21E  
NBU 921-34K SWD in Sec. 34 T9S R21E  
NBU 921-33F SWD in Sec. 33 T9S R21E  
NBU 921-34L SWD in Sec. 34 T9S R21E

Drill cuttings and/or fluids will be contained in the reserve/frac pit. Cuttings will be buried in pit(s) upon closure. Unless otherwise approved, no oil or other oil-based drilling additives, chromium/metals-based, or saline muds will be used during drilling. Only fresh water (as specified above), biodegradable polymer soap, bentonite clay, and/or non-toxic additives will be used in the mud system.

Pits will be constructed to minimize the accumulation of surface runoff. Should fluid hydrocarbons be encountered during drilling, completions or well testing, product will either be contained in test tanks on the well site or evacuated by vacuum trucks and transported to an approved disposal/sales facility. Should petroleum hydrocarbons unexpectedly be released into a pit, they will be removed as soon as practical but in no case will they remain longer than 72 hours unless an alternate is approved by SITLA. Should timely removal prove infeasible, the pit will be netted with mesh no larger than 1 inch until such time as hydrocarbons can be removed. Hydrocarbon removal will also take place prior to the closure of the pit, unless authorization is provided for disposal via alternative pit closure methods (e.g. solidification).

The reserve and/or fracture stimulation pit will be lined with a synthetic material 20-mil or thicker. The liner will be installed over smooth fill subgrade that is free of pockets, loose rocks, or other materials (i.e. sand, sifted dirt, bentonite, straw, etc.) that could damage the liner. Any additional pits necessary for subsequent operations, such as temporary flare or workover pits, will be contained within the originally approved well pad and disturbance boundaries. Such temporary pits will be backfilled and reclaimed within 180 days of completion of work at a well location.

For the protection of livestock and wildlife, all open pits and cellars will be fenced/covered to prevent wildlife or livestock entry. Total height of pit fencing will be at least 42 inches and corner posts will be cemented and/or braced in such a manner as to keep the fence tight at all times. Standard steel, wood, or pipe posts shall be used between the corner braces. Maximum distance between any 2 fence posts shall be no greater than 16 feet.

Pits containing drilling cuttings, mud, and/or completions fluids will be allowed to dry. Any free fluids remaining after six (6) months from reaching total depth, date of completion, and/or determination of inactivity will be removed (as weather conditions allow) to an approved site and the pit reclaimed. Additional drying methods may include fly-ash solidification or sprinkler evaporation. Installation and operation of any sprinklers, pumps, and equipment will ensure that water spray or mist does not drift. Reserve pit liners will be cut off or folded as near to the mud surface as possible and as safety considerations allow and buried on location.

No garbage or non-exempt substances as defined by Resource Conservation and Recovery Act (RCRA)

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36J4CS/ 36O1BS/ 36O4BS**

**Surface Use Plan of Operations  
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subtitle C will be placed in the reserve pit. All refuse generated during construction, drilling, completion, and well testing activities will be contained in an enclosed receptacle, removed from the drill locations promptly, and transported to an approved disposal facility.

Portable, self-contained chemical toilets and/or sewage processing facilities will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility. All applicable regulations pertaining to disposal of human and solid waste will be observed.

Any undesirable event, including accidental release of fluids, or release in excess of reportable quantities, will be managed according to the notification requirements of UDOGMs "Reporting Oil and Gas Undesirable Events" rule. Where State wells are participatory to a Federal agreement, according to NTL-3A, the appropriate Federal agencies will be notified.

### **Materials Management**

Hazardous materials above reportable quantities will not be produced by drilling or completing proposed wells or constructing the pipelines/facilities. The term "hazardous materials" as used here means: (1) any substance, pollutant, or containment listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended 42 U.S.C. 9601 et seq., and the regulations issued under CERCLA; and (2) any hazardous waste as defined in RCRA of 1976, as amended. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing any well.

Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) in quantities of 10,000 pounds or more may be produced and/or stored at production facilities and may be kept in limited quantities on drilling sites and well locations for short periods of time during drilling or completion activities.

#### **G. Ancillary Facilities:**

None are anticipated.

#### **H. Well Site Layout (see Well Pad Design Summary):**

The location, orientation and aerial extent of each drill pad, reserve/completion/flare pit, access road ingress/egress points, drilling rig, dikes/ditches, existing wells/infrastructure, proposed cuts and fills, and topsoil and spoil material stockpile locations are depicted on the exhibits for each project where applicable. Site-specific conditions may require slight deviation in actual equipment and facility layout; however, the area of disturbance, as described in the survey, will not be exceeded.

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36J4CS/ 36O1BS/ 36O4BS**

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Coordinates are provided in the National Spatial Reference System, North American Datum, 1927 (NAD27) or latest edition. Distances are depicted on each plat to the nearest two adjacent section lines.

**I. Plans for Reclamation of the Surface:**

Surface reclamation will be undertaken in two phases: interim and final. Interim reclamation is conducted following well completion and extends through the period of production. This reclamation is for the area of the well pad that is not required for production activities. Final reclamation is conducted following well plugging/conversion and/or facility abandonment processes.

Reclamation activities in both phases may include but are not limited to: re-contouring or re-configuration of topographic surfaces, restoration of drainage systems, segregation of spoils materials, minimizing surface disturbance, re-evaluating backfill requirements, pit closure, topsoil redistribution, soil treatments, seeding and weed control.

**Interim Reclamation**

Interim reclamation includes pit closure, re-contouring (where possible), soil bed preparation, topsoil placement, seeding, and/or weed control.

Interim re-contouring involves bringing all construction material from cuts and fills back onto the well pad and site and reestablishing the natural contours where desirable and practical. Fill and stockpiled spoils no longer necessary to the operation will be spread on the cut slopes and covered with stockpiled topsoil. All stockpiled top soils will be used for interim reclamation where practical to maintain soil viability. Where possible, the land surface will be left “rough” after re-contouring to ensure that the maximum surface area will be available to support the reestablishment of vegetative cover.

A reserve pit, upon being allowed to dry, will be backfilled and compacted with cover materials that are void of any topsoil, vegetation, large stones, rocks or foreign objects. Soils that are moisture laden, saturated, or partially/completely frozen will not be used for backfill or cover. The pit area will be mounded to allow for settling and to promote positive surface drainage away from the pit.

**Final Reclamation**

Final reclamation will be performed for newly drilled unproductive wells and/or at the end of the life of a productive well. As soon as practical after the conclusion of drilling and testing operations, unproductive drill holes will be plugged and abandoned (P&A). Site and road reclamation will commence following plugging. In no case will reclamation at non-producing locations be initiated later than six (6) months from the date a well is plugged. A joint inspection of the disturbed area to be reclaimed may be requested by KMG. The primary purpose of this inspection will be to review the existing conditions, or agree upon a revised final reclamation and abandonment plan. A Notice of Intent to Abandon will be filed for final recommendations regarding surface reclamation.

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After plugging, all wellhead equipment that is no longer needed will be removed, and the well site will be reclaimed. Final contouring will blend with and follow as closely as practical the natural terrain and contours of the original site and surrounding areas. After re-contouring, final grading will be conducted over the entire surface of the well site and access road. Where practical, the area will be ripped to a depth of 18 to 24 inches on 18 to 24-inch centers and surface materials will be pitted with small depressions to form longitudinal depressions 12 to 18 inches deep perpendicular to the natural flow of water.

All unnecessary surface equipment and structures (e.g. cattle guards) and water control structures (e.g. culverts, drainage pipes) not needed to facilitate successful reclamation will be removed during final reclamation. Roads that will be reclaimed will be ripped to a depth of 18 inches where practical, re-contoured to approximate the original contour of the ground and seeded.

Upon successfully completing reclamation of a P&A location, a Final Abandonment Notice will be submitted to UDOGM.

#### **Seeding and Measures Common to Interim and Final Reclamation**

Reclaimed areas may be fenced to exclude grazing and encourage re-vegetation.

On slopes where severe erosion can become a problem and the use of machinery is not practical, seed will be hand broadcast and raked with twice the specified amount of seed. The slope will be stabilized using materials specifically designed to prevent erosion on steep slopes and hold seed in place so vegetation can become permanently established. These materials will include, but are not limited to, erosion control blankets and bonded fiber matrix at a rate to achieve a minimum of 80 percent soil coverage.

Seeding will occur year-round as conditions allow. Seed mixes appropriate to the native plant community as determined and specified for each project location based on the site specific soils will be used for re-vegetation. The site specific seed mix will be provided by SITLA.

**J.     Surface/Mineral Ownership:**  
SITLA  
675 East 500 South, Suite 500  
Salt Lake City, UT 84102

**K.     Other Information:**

None

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36J4CS/ 36O1BS/ 36O4BS

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**M. Lessee's or Operators' Representative & Certification:**

Gina T. Becker  
Regulatory Analyst II  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6086

Tommy Thompson  
General Manager, Drilling  
Kerr-McGee Oil & Gas Onshore LP  
PO Box 173779  
Denver, CO 80217-3779  
(720) 929-6724


Certification: All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, Onshore Oil and Gas Orders, the approved Plan of Operations, and any applicable Notice to Lessees.

The Operator will be fully responsible for the actions of its subcontractors. A complete copy of the approved "Application for Permit to Drill" will be furnished to the field representative(s) to ensure compliance and shall be on location during all construction and drilling operations.

Kerr-McGee Oil & Gas Onshore LP is considered to be the operator of the subject well. Kerr-McGee Oil & Gas Onshore LP agrees to be responsible under terms and conditions of the lease for the operations conducted upon leased lands.

Bond coverage for State lease activities is provided by State Surety Bond 22013542, and for applicable Federal lease activities and pursuant to 43 CFR 3104, by Bureau of Land Management Nationwide Bond WYB000291.

I hereby certify that I, or persons under my supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions that currently exist; that I have full knowledge of the State and Federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

  
Gina T. Becker

May 13, 2011  
Date



JOE JOHNSON  
LANDMAN

KERR-MCGEE ONSHORE OIL & GAS, L.P.  
1099 18TH STREET, SUITE 1800  
DENVER, CO 80202  
720-929-6708 • FAX 720-929-7708  
E-MAIL: JOE.JOHNSON@ANADARKO.COM

April 13, 2011

Ms. Diana Mason  
Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, UT 84114-6100

Re: Directional Drilling R649-3-11  
NBU 922-36O4BS  
T9S-R22E  
Section 36: SWSE/SWSE  
Surface: 1250' FSL, 2103' FEL  
Bottom Hole: 415' FSL, 1814' FEL  
Uintah County, Utah

Dear Ms. Mason:

Pursuant to the filing of Kerr-McGee Oil & Gas Onshore LP's (Kerr-McGee) Application for Permit to Drill regarding the above referenced well, we are hereby submitting this letter in accordance with Oil & Gas Conservation Rule R649-3-11 pertaining to the Exception to Location and Siting of Wells.

- Kerr-McGee's NBU 922-36O4BS is located within the Natural Buttes Unit area.
- Kerr-McGee is permitting this well as a directional well in order to minimize surface disturbance. Locating the well at the surface location and directionally drilling from this location, Kerr-McGee will be able to utilize the existing road and pipelines in the area.
- Furthermore, Kerr-McGee certifies that it is the sole working interest owner within 460 feet of the entire directional well bore.

Therefore, based on the above stated information Kerr-McGee Oil & Gas Onshore LP requests the permit be granted pursuant to R649-3-11.

Sincerely,

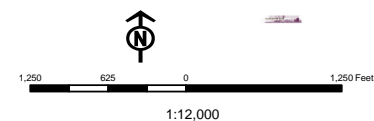
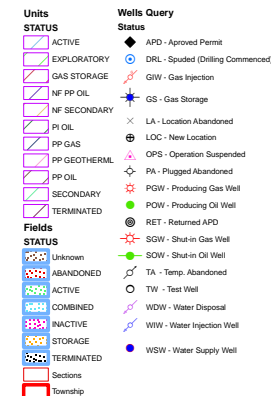
KERR-MCGEE OIL & GAS ONSHORE LP

A handwritten signature in blue ink, appearing to read 'Joe D. Johnson', with a horizontal line drawn underneath.

Joseph D. Johnson  
Landman



Map Produced by Diana Mason



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, Utah 84145-0155

IN REPLY REFER TO:

3160

(UT-922)

May 20, 2011

Memorandum

To: Assistant District Manager Minerals, Vernal District

From: Michael Coulthard, Petroleum Engineer

Subject: 2011 Plan of Development Natural Buttes Unit  
Uintah County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following wells are planned for calendar year 2011 within the Natural Buttes Unit, Uintah County, Utah.

API #	WELL NAME	LOCATION
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(Proposed PZ WASATCH-MESA VERDE)

**NBU 922-36I PAD**

43-047-51586	NBU 922-36H4BS	Sec 36 T09S R22E 2006 FSL 0799 FEL
	BHL	Sec 36 T09S R22E 2071 FNL 0494 FEL

43-047-51587	NBU 922-36H4CS	Sec 36 T09S R22E 2014 FSL 0792 FEL
	BHL	Sec 36 T09S R22E 2508 FNL 0495 FEL

43-047-51588	NBU 922-36I1CS	Sec 36 T09S R22E 2021 FSL 0785 FEL
	BHL	Sec 36 T09S R22E 2237 FSL 0494 FEL

43-047-51589	NBU 922-36I4CS	Sec 36 T09S R22E 1999 FSL 0805 FEL
	BHL	Sec 36 T09S R22E 1574 FSL 0493 FEL

**NBU 922-36K PAD**

43-047-51590	NBU 922-36K1BS	Sec 36 T09S R22E 1798 FSL 1998 FWL
	BHL	Sec 36 T09S R22E 2567 FSL 2148 FWL

43-047-51591	NBU 922-36K1CS	Sec 36 T09S R22E 1809 FSL 2015 FWL
	BHL	Sec 36 T09S R22E 2236 FSL 2147 FWL

43-047-51592	NBU 922-36K4BS	Sec 36 T09S R22E 1815 FSL 2023 FWL
	BHL	Sec 36 T09S R22E 1904 FSL 2147 FWL

43-047-51593	NBU 922-36K4CS	Sec 36 T09S R22E 1804 FSL 2006 FWL
	BHL	Sec 36 T09S R22E 1573 FSL 2146 FWL

43-047-51594	NBU 922-36L4CS	Sec 36 T09S R22E 1793 FSL 1990 FWL
	BHL	Sec 36 T09S R22E 1565 FSL 0821 FWL



API #	WELL NAME	LOCATION
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(Proposed PZ WASATCH-MESA VERDE)

**NBU 922-36N PAD**

43-047-51595	NBU 922-36M1CS	Sec 36 T09S R22E 1078 FSL 2379 FWL
	BHL	Sec 36 T09S R22E 0792 FSL 0816 FWL
43-047-51596	NBU 922-36M4CS	Sec 36 T09S R22E 1068 FSL 2379 FWL
	BHL	Sec 36 T09S R22E 0132 FSL 0819 FWL
43-047-51597	NBU 922-36N1BS	Sec 36 T09S R22E 1088 FSL 2379 FWL
	BHL	Sec 36 T09S R22E 1253 FSL 2140 FWL
43-047-51598	NBU 922-36N4CS	Sec 36 T09S R22E 1048 FSL 2379 FWL
	BHL	Sec 36 T09S R22E 0190 FSL 2081 FWL
43-047-51599	NBU 922-36O4CS	Sec 36 T09S R22E 1058 FSL 2379 FWL
	BHL	Sec 36 T09S R22E 0085 FSL 1814 FEL

**NBU 922-36O PAD**

43-047-51600	NBU 922-36J1CS	Sec 36 T09S R22E 1247 FSL 2113 FEL
	BHL	Sec 36 T09S R22E 2071 FSL 1809 FEL
43-047-51601	NBU 922-36J4BS	Sec 36 T09S R22E 1254 FSL 2094 FEL
	BHL	Sec 36 T09S R22E 1740 FSL 1816 FEL
43-047-51602	NBU 922-36J4CS	Sec 36 T09S R22E 1261 FSL 2075 FEL
	BHL	Sec 36 T09S R22E 1409 FSL 1816 FEL
43-047-51603	NBU 922-36O1BS	Sec 36 T09S R22E 1257 FSL 2085 FEL
	BHL	Sec 36 T09S R22E 1078 FSL 1815 FEL
43-047-51604	NBU 922-36O4BS	Sec 36 T09S R22E 1250 FSL 2103 FEL
	BHL	Sec 36 T09S R22E 0415 FSL 1814 FEL

**NBU 922-36P PAD**

43-047-51605	NBU 922-36P1BS	Sec 36 T09S R22E 1207 FSL 0606 FEL
	BHL	Sec 36 T09S R22E 1243 FSL 0493 FEL
43-047-51606	NBU 922-36P1CS	Sec 36 T09S R22E 1198 FSL 0611 FEL
	BHL	Sec 36 T09S R22E 0911 FSL 0493 FEL
43-047-51607	NBU 922-36P4BS	Sec 36 T09S R22E 1189 FSL 0616 FEL
	BHL	Sec 36 T09S R22E 0580 FSL 0493 FEL
43-047-51608	NBU 922-36P4CS	Sec 36 T09S R22E 1181 FSL 0621 FEL
	BHL	Sec 36 T09S R22E 0243 FSL 0492 FEL

**NBU 922-36B PAD**

43-047-51609	NBU 922-36A1CS	Sec 36 T09S R22E 0678 FNL 2273 FEL
	BHL	Sec 36 T09S R22E 0485 FNL 0494 FEL
43-047-51610	NBU 922-36B1CS	Sec 36 T09S R22E 0674 FNL 2282 FEL
	BHL	Sec 36 T09S R22E 0579 FNL 1821 FEL
43-047-51611	NBU 922-36B4BS	Sec 36 T09S R22E 0682 FNL 2264 FEL
	BHL	Sec 36 T09S R22E 0905 FNL 1828 FEL

API #	WELL NAME	LOCATION
(Proposed PZ WASATCH-MESA VERDE)		
43-047-51612	NBU 922-36G1BS	Sec 36 T09S R22E 0671 FNL 2291 FEL
	BHL	Sec 36 T09S R22E 1439 FNL 1861 FEL
<b>NBU 922-36C PAD</b>		
43-047-51613	NBU 922-36C1CS	Sec 36 T09S R22E 0700 FNL 1741 FWL
	BHL	Sec 36 T09S R22E 0485 FNL 2152 FWL
43-047-51614	NBU 922-36C4BS	Sec 36 T09S R22E 0706 FNL 1749 FWL
	BHL	Sec 36 T09S R22E 0746 FNL 2153 FWL
43-047-51615	NBU 922-36F1BS	Sec 36 T09S R22E 0718 FNL 1765 FWL
	BHL	Sec 36 T09S R22E 1407 FNL 2151 FWL
43-047-51616	NBU 922-36F1CS	Sec 36 T09S R22E 0712 FNL 1757 FWL
	BHL	Sec 36 T09S R22E 1738 FNL 2150 FWL
<b>NBU 922-36D PAD</b>		
43-047-51617	NBU 922-36D1CS	Sec 36 T09S R22E 1062 FNL 0981 FWL
	BHL	Sec 36 T09S R22E 0579 FNL 0825 FWL
43-047-51618	NBU 922-36D4BS	Sec 36 T09S R22E 1060 FNL 0971 FWL
	BHL	Sec 36 T09S R22E 0910 FNL 0825 FWL
43-047-51619	NBU 922-36D4CS	Sec 36 T09S R22E 1064 FNL 0990 FWL
	BHL	Sec 36 T09S R22E 1241 FNL 0825 FWL
43-047-51620	NBU 922-36E1BS	Sec 36 T09S R22E 1067 FNL 1000 FWL
	BHL	Sec 36 T09S R22E 1572 FNL 0825 FWL
<b>NBU 922-36E PAD</b>		
43-047-51621	NBU 922-36E1CS	Sec 36 T09S R22E 1682 FNL 0739 FWL
	BHL	Sec 36 T09S R22E 1903 FNL 0824 FWL
43-047-51622	NBU 922-36E4BS	Sec 36 T09S R22E 1684 FNL 0729 FWL
	BHL	Sec 36 T09S R22E 2245 FNL 0818 FWL
43-047-51623	NBU 922-36E4CS	Sec 36 T09S R22E 1686 FNL 0719 FWL
	BHL	Sec 36 T09S R22E 2565 FNL 0824 FWL
43-047-51624	NBU 922-36L1BS	Sec 36 T09S R22E 1688 FNL 0709 FWL
	BHL	Sec 36 T09S R22E 2401 FSL 0824 FWL
<b>NBU 922-36G3 PAD</b>		
43-047-51625	NBU 922-36F4BS	Sec 36 T09S R22E 2414 FNL 2443 FEL
	BHL	Sec 36 T09S R22E 2070 FNL 2149 FWL
43-047-51626	NBU 922-36F4CS	Sec 36 T09S R22E 2424 FNL 2445 FEL
	BHL	Sec 36 T09S R22E 2401 FNL 2149 FWL
43-047-51627	NBU 922-36G4BS	Sec 36 T09S R22E 2405 FNL 2441 FEL
	BHL	Sec 36 T09S R22E 2235 FNL 1818 FEL
43-047-51628	NBU 922-36G4CS	Sec 36 T09S R22E 2434 FNL 2447 FEL
	BHL	Sec 36 T09S R22E 2566 FNL 1818 FEL

This office has no objection to permitting the wells at this time.

Michael L. Coulthard

Digitally signed by Michael L. Coulthard  
DN: cn=Michael L. Coulthard, o=Bureau of Land  
Management, ou=Branch of Minerals,  
email=Michael\_Coulthard@blm.gov, c=US  
Date: 2011.05.23 07:16:05 -06'00'

bcc: File - Natural Buttes Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:5-20-11

**From:** Jim Davis  
**To:** Bonner, Ed; Garrison, LaVonne; Hill, Brad; Mason, Diana  
**CC:** Gina Becker; Lytle, Andy  
**Date:** 6/8/2011 3:00 PM  
**Subject:** Kerr McGee APD approvals.

The following APDs have been approved by SITLA including arch and paleo clearance.

4304751586 NBU 922-36H4BS  
4304751587 NBU 922-36H4CS  
4304751588 NBU 922-36I1CS  
4304751589 NBU 922-36I4CS  
4304751590 NBU 922-36K1BS  
4304751591 NBU 922-36K1CS  
4304751592 NBU 922-36K4BS  
4304751593 NBU 922-36K4CS  
4304751594 NBU 922-36L4CS  
4304751595 NBU 922-36M1CS  
4304751596 NBU 922-36M4CS  
4304751597 NBU 922-36N1BS  
4304751598 NBU 922-36N4CS  
4304751599 NBU 922-36O4CS  
4304751600 NBU 922-36J1CS  
4304751601 NBU 922-36J4BS  
4304751602 NBU 922-36J4CS  
4304751603 NBU 922-36O1BS  
4304751604 NBU 922-36O4BS  
4304751605 NBU 922-36P1BS  
4304751606 NBU 922-36P1CS  
4304751607 NBU 922-36P4BS  
4304751608 NBU 922-36P4CS  
4304751613 NBU 922-36C1CS  
4304751614 NBU 922-36C4BS  
4304751615 NBU 922-36F1BS  
4304751616 NBU 922-36F1CS  
4304751617 NBU 922-36D1CS  
4304751618 NBU 922-36D4BS  
4304751619 NBU 922-36D4CS  
4304751620 NBU 922-36E1BS  
4304751621 NBU 922-36E1CS  
4304751622 NBU 922-36E4BS  
4304751623 NBU 922-36E4CS  
4304751624 NBU 922-36L1BS  
4304751625 NBU 922-36F4BS  
4304751626 NBU 922-36F4CS  
4304751627 NBU 922-36G4BS  
4304751628 NBU 922-36G4CS

Full paleo monitoring is a required condition for the approval of these APDs- as recommended in the paleo report.

4304751609 NBU 922-36A1CS  
4304751610 NBU 922-36B1CS  
4304751611 NBU 922-36B4BS  
4304751612 NBU 922-36G1BS

Thanks.  
-Jim

API Well Number: 43047516040000

Jim Davis  
Utah Trust Lands Administration  
jimdavis1@utah.gov  
Phone: (801) 538-5156

API Well Number: 43047516040000

BOPE REVIEW      KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.   NBU 922-3604BS   43047516040000

Well Name	KERR-MCGEE OIL & GAS ONSHORE, L.P. NBU 922-3604BS			
String	Surf	Prod		
Casing Size(")	8.625	4.500		
Setting Depth (TVD)	2116	8560		
Previous Shoe Setting Depth (TVD)	80	2116		
Max Mud Weight (ppg)	8.4	12.5		
BOPE Proposed (psi)	500	5000		
Casing Internal Yield (psi)	3390	7780		
Operators Max Anticipated Pressure (psi)	5478	12.3		

Calculations	Surf String	8.625	"	
Max BHP (psi)	.052*Setting Depth*MW=	924		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	670	NO	air drill
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	458	YES	Ok
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	476	NO	Reasonable for area
Required Casing/BOPE Test Pressure=		2116	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		80	psi   *Assumes 1psi/ft frac gradient	

Calculations	Prod String	4.500	"	
Max BHP (psi)	.052*Setting Depth*MW=	5564		
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4537	YES	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3681	YES	OK
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	4146	NO	Reasonable
Required Casing/BOPE Test Pressure=		5000	psi	
*Max Pressure Allowed @ Previous Casing Shoe=		2116	psi   *Assumes 1psi/ft frac gradient	

Calculations	String		"	
Max BHP (psi)	.052*Setting Depth*MW=			
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO	
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO	
Required Casing/BOPE Test Pressure=			psi	
*Max Pressure Allowed @ Previous Casing Shoe=			psi   *Assumes 1psi/ft frac gradient	

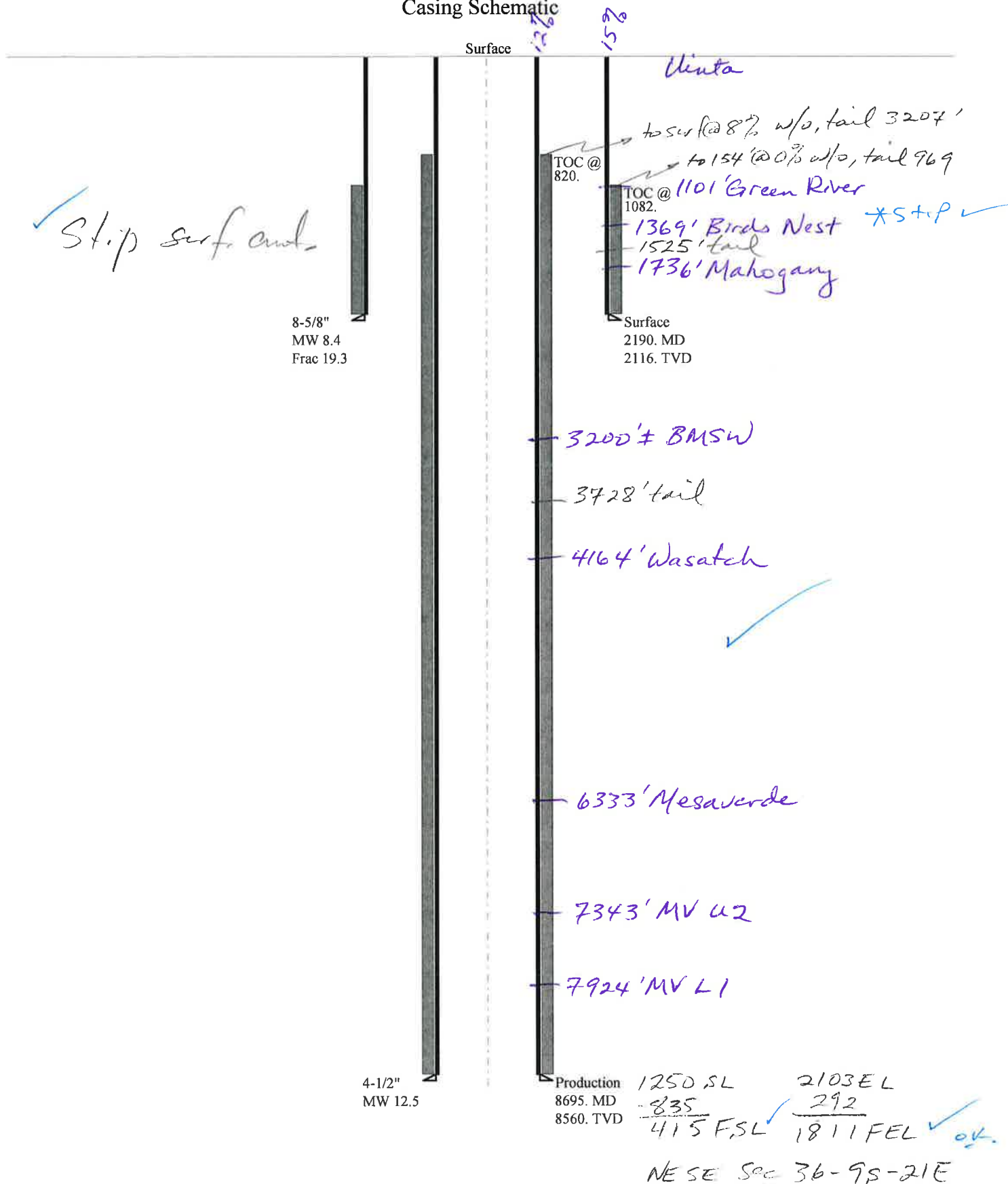
Calculations	String		"	
Max BHP (psi)	.052*Setting Depth*MW=			
			BOPE Adequate For Drilling And Setting Casing at Depth?	
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=		NO	
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=		NO	
			*Can Full Expected Pressure Be Held At Previous Shoe?	
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=		NO	
Required Casing/BOPE Test Pressure=			psi	

API Well Number: 43047516040000

*Max Pressure Allowed @ Previous Casing Shoe=	<input type="text"/>	psi	*Assumes 1psi/ft frac gradient
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43047516040000 NBU 922-3604BS

Casing Schematic





Well name:	<b>43047516040000 NBU 922-36O4BS</b>	
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>	
String type:	Surface	Project ID: 43-047-51604
Location:	UINTAH COUNTY	

**Design parameters:****Collapse**

Mud weight: 8.400 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 104 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 1,082 ft

**Burst**

Max anticipated surface pressure: 1,927 psi  
Internal gradient: 0.120 psi/ft  
Calculated BHP 2,181 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.70 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on air weight.  
Neutral point: 1,911 ft

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 477 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 20 °

**Re subsequent strings:**

Next setting depth: 8,695 ft  
Next mud weight: 12.500 ppg  
Next setting BHP: 5,646 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,190 ft  
Injection pressure: 2,190 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	2190	8.625	28.00	I-55	LT&C	2116	2190	7.892	86724

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	923	1880	2.036	2181	3390	1.55	59.3	348	5.87 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: July 20, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 2116 ft, a mud weight of 8.4 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

Well name:	<b>43047516040000 NBU 922-36O4BS</b>	
Operator:	<b>KERR-MCGEE OIL &amp; GAS ONSHORE, L.P.</b>	
String type:	Production	Project ID: 43-047-51604
Location:	UINTAH COUNTY	

**Design parameters:****Collapse**

Mud weight: 12.500 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 194 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 820 ft

**Burst**

Max anticipated surface pressure: 3,675 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 5,558 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.60 (B)

**Directional Info - Build & Drop**

Kick-off point 300 ft  
Departure at shoe: 885 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 0 °

Tension is based on air weight.  
Neutral point: 7,096 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	8695	4.5	11.60	I-80	LT&C	8560	8695	3.875	114774

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	5558	6360	1.144	5558	7780	1.40	99.3	212	2.14 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: July 20, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 8560 ft, a mud weight of 12.5 ppg. The casing is considered to be evacuated for collapse purposes.  
Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

*Engineering responsibility for use of this design will be that of the purchaser.*

**ON-SITE PREDRILL EVALUATION****Utah Division of Oil, Gas and Mining**

<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.				
<b>Well Name</b>	NBU 922-36O4BS				
<b>API Number</b>	43047516040000	<b>APD No</b>	3821	<b>Field/Unit</b>	NATURAL BUTTES
<b>Location: 1/4,1/4</b>	SWSE	<b>Sec</b>	36	<b>Tw</b>	9.0S
		<b>Rng</b>	22.0E	1250	FSL 2103 FEL
<b>GPS Coord (UTM)</b>	637828	4427543	<b>Surface Owner</b>		

**Participants**

Floyd Bartlett (DOGM), Sheila Wopsock, Lovell Young, Gina Becker, Mark Koehn, Griz Oleen (Kerr McGee), Ben Williams (UDWR) and Mitch Batty, John Slaugh (Timberline Engineering and Land Surveying).

**Regional/Local Setting & Topography**

The general area is in the southeast portion of the Natural Buttes Unit, which contains the White River and rugged drainages that drain into the White River. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River varies from  $\frac{3}{4}$  mile to 2 miles. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 42 air miles to the northwest. Access from Vernal is approximately 45.6 road miles following Utah State, Uintah County and oilfield development roads to the location.

Five additional gas wells will be added to and directionally drilled from the NBU 922-36O pad. They are the NBU 922-36J4CS, NBU 922-36O1BS, NBU 922-36J4BS, NBU 922-36O4BS and NBU 922-36J1CS. The pad contains the existing MBU 922-36O gas well. The site is within a moderately wide cove surrounded by steep, ledgy hills on all sides except to the east. The existing pad will be reoriented and significantly enlarged in all directions. A diversion is needed on the west to continue north around the stockpile to catch the short drainage from the west. On the east, catch the drainage from the south and divert it to the east and north around the pad cutting thru the topsoil pile or relocate this pile. This area may have to be reinforced with rock. A cut of 18.8 feet occurs at Corner 6. Maximum fill is 9.2 feet at Location Corner 2. Where the pad is cut into steep side slope behind the pit, the cut slope may be left at about  $\frac{1}{4}$ :1 to reduce the amount of cutting and disturbance. Reserve pit corner A is in 3.1 feet of fill. With the proposed 15 foot outer bench, 2 feet of freeboard, a 30-mil liner and the spoils placed along this side, it should be stable. The existing pad shows no stability problems. Although significant excavation is required for enlarging the pad, no stability concerns exist. The selected site is the only suitable location in the immediate area.

Both the surface and minerals are owned by SITLA.

**Surface Use Plan****Current Surface Use**

Grazing  
Wildlife Habitat  
Existing Well Pad

<b>New Road Miles</b>	<b>Well Pad</b>	<b>Src Const Material</b>	<b>Surface Formation</b>
0	<b>Width</b> 352 <b>Length</b> 465	Onsite	UNTA

**Ancillary Facilities** N

**Waste Management Plan Adequate?****Environmental Parameters**

**Affected Floodplains and/or Wetlands N****Flora / Fauna**

Area beyond the existing pad is poorly vegetated with blue bunch wheatgrass, Indian ricegrass, greasewood, cheatgrass, black sagebrush, broom snakeweed, globemallow, Sitanion hystrix, shadscale, rabbitbrush, loco weed, pepper weed, halogeton and annuals.

Sheep, deer, antelope, coyote, and other small mammals and birds.

**Soil Type and Characteristics**

Soils are shallow and rocky.

Soils are shallow and rocky.

**Erosion Issues Y****Sedimentation Issues Y****Site Stability Issues N****Drainage Diversion Required? Y****Berm Required? N****Erosion Sedimentation Control Required? Y**

**Paleo Survey Run? Y   Paleo Potential Observed? N   Cultural Survey Run? Y   Cultural Resources? N**

**Reserve Pit****Site-Specific Factors****Site Ranking**

<b>Distance to Groundwater (feet)</b>	100 to 200	5
<b>Distance to Surface Water (feet)</b>	>1000	0
<b>Dist. Nearest Municipal Well (ft)</b>	>5280	0
<b>Distance to Other Wells (feet)</b>		20
<b>Native Soil Type</b>	Mod permeability	10
<b>Fluid Type</b>	Fresh Water	5
<b>Drill Cuttings</b>	Normal Rock	0
<b>Annual Precipitation (inches)</b>		0
<b>Affected Populations</b>		
<b>Presence Nearby Utility Conduits</b>	Not Present	0
<b>Final Score</b>		40

1 Sensitivity Level

**Characteristics / Requirements**

The reserve pit is planned mostly in an area of cut in the southeast side of the location. Dimensions are 100' x 260' x 12' deep with 2' of freeboard. Corner A is within 3.4 feet of fill. With the proposed 15 foot outer bench, 2 feet of freeboard, a 30-mil liner and the spoils placed along this side, it should be stable.

**Closed Loop Mud Required? N   Liner Required? Y   Liner Thickness 30   Pit Underlayment Required? N**

**Other Observations / Comments**

Floyd Bartlett  
**Evaluator**

5/24/2011  
**Date / Time**

# Application for Permit to Drill

## Statement of Basis

8/3/2011

Utah Division of Oil, Gas and Mining

Page 1

<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Owner</b>	<b>CBM</b>
3821	43047516040000	SITLA	GW	S	No
<b>Operator</b>	KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>Surface Owner-APD</b>		
<b>Well Name</b>	NBU 922-36O4BS		<b>Unit</b>	NATURAL BUTTES	
<b>Field</b>	NATURAL BUTTES		<b>Type of Work</b>	DRILL	
<b>Location</b>	SWSE 36 9S 22E S 1250 FSL 2103 FEL GPS Coord (UTM) 637816E 4427542N				

### Geologic Statement of Basis

Kerr McGee proposes to set 2,190' of surface casing at this location. The depth to the base of the moderately saline water at this location is estimated to be at a depth of 3,200'. A search of Division of Water Rights records shows no water wells within a 10,000 foot radius of the proposed location. The surface formation at this site is the Uinta Formation. The Uinta Formation is made up of interbedded shales and sandstones. The sandstones are mostly lenticular and discontinuous and should not be a significant source of useable ground water. The production casing cement should be brought up above the base of the moderately saline ground water in order to isolate it from fresher waters up hole. The proposed casing and cement should adequately protect any usable ground water.

Brad Hill  
APD Evaluator

6/21/2011  
Date / Time

### Surface Statement of Basis

Floyd Bartlett (DOGM), Sheila Wopsock, Lovell Young, Gina Becker, Mark Koehn, Griz Oleen (Kerr McGee), Ben Williams (UDWR) and Mitch Batty, John Slaugh (Timberline Engineering and Land Surveying).

The general area is in the southeast portion of the Natural Buttes Unit, which contains the White River and rugged drainages that drain into the White River. Topography is varied and frequently dissected by short draws or washes, which become overly steep as they approach the White River breaks or rim. Distance to the White River varies from  $\frac{3}{4}$  mile to 2 miles. The side drainages are dry except for ephemeral flows. No seeps or springs exist in the area. An occasional pond has been constructed to supply water for livestock and antelope. Vernal, Utah is approximately 42 air miles to the northwest. Access from Vernal is approximately 45.6 road miles following Utah State, Uintah County and oilfield development roads to the location.

Five additional gas wells will be added to and directionally drilled from the NBU 922-36O pad. They are the NBU 922-36J4CS, NBU 922-36O1BS, NBU 922-36J4BS, NBU 922-36O4BS and NBU 922-36J1CS. The pad contains the existing MBU 922-36O gas well. The site is within a moderately wide cove surrounded by steep, ledgy hills on all sides except to the east. The existing pad will be reoriented and significantly enlarged in all directions. A diversion is needed on the west to continue north around the stockpile to catch the short drainage from the west. On the east, catch the drainage from the south and divert it to the east and north around the pad cutting thru the topsoil pile or relocate this pile. This area may have to be reinforced with rock. A cut of 18.8 feet occurs at Corner 6. Maximum fill is 9.2 feet at Location Corner 2. Where the pad is cut into steep side slope behind the pit, the cut slope may be left at about  $\frac{1}{4}$ :1 to reduce the amount of cutting and disturbance. Reserve pit corner A is in 3.1 feet of fill. With the proposed 15 foot outer bench, 2 feet of freeboard, a 30-mil liner and the spoils placed along this side, it should be stable. The existing pad shows no stability problems. Although significant excavation is required for enlarging the pad, no stability concerns exist. The selected site is the only suitable location in the immediate area.

Both the surface and minerals are owned by SITLA. Ed Bonner and Jim Davis of SITLA were invited to attend the pre-site evaluation. Neither attended. SITLA is to be contacted for reclamation standards including a seed

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## Application for Permit to Drill Statement of Basis

8/3/2011

**Utah Division of Oil, Gas and Mining**Page 2

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mix to be used.

Ben Williams of the Utah Division of Wildlife Resources attended the pre-site. Mr. Williams stated no wildlife values would be significantly affected by drilling and operating the additional wells at this location.

Floyd Bartlett  
**Onsite Evaluator**

5/24/2011  
**Date / Time**

**Conditions of Approval / Application for Permit to Drill**

<b>Category</b>	<b>Condition</b>
Pits	A synthetic liner with a minimum thickness of 30 mils with a double felt subliner shall be properly installed and maintained in the reserve pit.
Surface	Drainages adjacent to the proposed pad shall be diverted around the location. A diversion is needed on the west to continue north around the stockpile to catch the short drainage from the west. On the east, catch the drainage from the south and divert it to the east and north around the pad cutting thru the topsoil pile or relocate this pile.
Surface	The reserve pit shall be fenced upon completion of drilling operations.

## WORKSHEET APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 5/14/2011**API NO. ASSIGNED:** 43047516040000**WELL NAME:** NBU 922-36O4BS**OPERATOR:** KERR-MCGEE OIL & GAS ONSHORE, L.P. (N2995)**PHONE NUMBER:** 720 929-6086**CONTACT:** Gina Becker**PROPOSED LOCATION:** SWSE 36 090S 220E**Permit Tech Review:** ☒**SURFACE:** 1250 FSL 2103 FEL**Engineering Review:** ☒**BOTTOM:** 0415 FSL 1814 FEL**Geology Review:** ☒**COUNTY:** UINTAH**LATITUDE:** 39.98872**LONGITUDE:** -109.38582**UTM SURF EASTINGS:** 637816.00**NORTHINGS:** 4427542.00**FIELD NAME:** NATURAL BUTTES**LEASE TYPE:** 3 - State**LEASE NUMBER:** ML-22650**PROPOSED PRODUCING FORMATION(S):** WASATCH-MESA VERDE**SURFACE OWNER:** 3 - State**COALBED METHANE:** NO**RECEIVED AND/OR REVIEWED:**☒ **PLAT**☒ **Bond:** STATE/FEE - 22013542☐ **Potash**☒ **Oil Shale 190-5**☐ **Oil Shale 190-3**☐ **Oil Shale 190-13**☒ **Water Permit:** Permit #43-8496☐ **RDCC Review:**☐ **Fee Surface Agreement**☒ **Intent to Commingle****Commingle Approved****LOCATION AND SITING:**☐ **R649-2-3.****Unit:** NATURAL BUTTES☐ **R649-3-2. General**☐ **R649-3-3. Exception**☒ **Drilling Unit****Board Cause No:** Cause 173-14**Effective Date:** 12/2/1999**Siting:** Suspends General Siting☒ **R649-3-11. Directional Drill****Comments:** Presite Completed

**Stipulations:** 3 - Commingle - ddoucet  
5 - Statement of Basis - bhill  
15 - Directional - dmason  
17 - Oil Shale 190-5(b) - dmason  
25 - Surface Casing - hmadonald





GARY R. HERBERT  
*Governor*

GREGORY S. BELL  
*Lieutenant Governor*

## State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

### Permit To Drill

\*\*\*\*\*

**Well Name:** NBU 922-36O4BS  
**API Well Number:** 43047516040000  
**Lease Number:** ML-22650  
**Surface Owner:** STATE  
**Approval Date:** 8/3/2011

**Issued to:**

KERR-MCGEE OIL & GAS ONSHORE, L.P., P.O. Box 173779, Denver, CO 80217

**Authority:**

Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of Cause 173-14. The expected producing formation or pool is the WASATCH-MESA VERDE Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

**Duration:**

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

**Commingling:**

In accordance with Board Cause No. 173-14, commingling of the production from the Wasatch formation and the Mesaverde formation in this well is allowed.

**General:**

Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

**Conditions of Approval:**

In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

In accordance with the Order in Cause No. 190-5(b) dated October 28, 1982, the operator shall comply with the requirements of Rules R649-3-31 and R649-3-27 pertaining to Designated Oil Shale Areas. Additionally, the operators shall ensure that the surface and or production casing is properly cemented over the entire oil shale section as defined by Rule R649-3-31. The Operator shall report the actual depth the oil shale is encountered to the division.

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

Surface casing shall be cemented to the surface.

**Additional Approvals:**

The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:

- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

**Notification Requirements:**

The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well – contact Carol Daniels  
OR  
submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at <http://oilgas.ogm.utah.gov>
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program – contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well – contact Dan Jarvis

**Contact Information:**

The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office  
801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office  
801-231-8956 - after office hours

**Reporting Requirements:**

All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

**Approved By:**



For John Rogers  
Associate Director, Oil & Gas

## BLM - Vernal Field Office - Notification Form

Operator KERR-McGEE OIL & GAS Rig Name/# BUCKET RIG  
Submitted By ANDY LYTLE Phone Number 720.929.6100  
Well Name/Number NBU 922-36O4BS  
Qtr/Qtr SWSE Section 36 Township 9S Range 22E  
Lease Serial Number ML 22650  
API Number 4304751604

Spud Notice – Spud is the initial spudding of the well, not drilling out below a casing string.

Date/Time 10/06/2011 10:30 HRS AM ☐ PM ☐

Casing – Please report time casing run starts, not cementing times.

- ☒ Surface Casing  
☐ Intermediate Casing  
☐ Production Casing  
☐ Liner  
☐ Other

RECEIVED

OCT 04 2011

DIV. OF OIL, GAS & MINING

Date/Time 10/25/2011 08:00 HRS AM ☐ PM ☐

BOPE

- ☐ Initial BOPE test at surface casing point  
☐ BOPE test at intermediate casing point  
☐ 30 day BOPE test  
☐ Other

Date/Time \_\_\_\_\_ AM ☐ PM ☐

Remarks ESTIMATED DATE AND TIME. PLEASE CONTACT KENNY GATHINGS AT  
435.828.0986 OR LOVEL YOUNG AT 435.781.7051

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22650
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 922-3604BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1250 FSL 2103 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWSE Section: 36 Township: 09.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047516040000
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> <b>ACIDIZE</b>	
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> <b>ALTER CASING</b>	
<input checked="" type="checkbox"/> <b>SPUD REPORT</b> Date of Spud: 10/6/2011	<input type="checkbox"/> <b>CASING REPAIR</b>	
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> <b>CHANGE TO PREVIOUS PLANS</b>	
	<input type="checkbox"/> <b>CHANGE TUBING</b>	
	<input type="checkbox"/> <b>CHANGE WELL STATUS</b>	
	<input type="checkbox"/> <b>COMMINGLE PRODUCING FORMATIONS</b>	
	<input type="checkbox"/> <b>DEEPEN</b>	
	<input type="checkbox"/> <b>FRACTURE TREAT</b>	
	<input type="checkbox"/> <b>OPERATOR CHANGE</b>	
	<input type="checkbox"/> <b>PLUG AND ABANDON</b>	
	<input type="checkbox"/> <b>PRODUCTION START OR RESUME</b>	
	<input type="checkbox"/> <b>RECLAMATION OF WELL SITE</b>	
	<input type="checkbox"/> <b>REPERFORATE CURRENT FORMATION</b>	
	<input type="checkbox"/> <b>SIDETRACK TO REPAIR WELL</b>	
	<input type="checkbox"/> <b>TUBING REPAIR</b>	
	<input type="checkbox"/> <b>VENT OR FLARE</b>	
	<input type="checkbox"/> <b>WATER SHUTOFF</b>	
	<input type="checkbox"/> <b>SI TA STATUS EXTENSION</b>	
	<input type="checkbox"/> <b>WILDCAT WELL DETERMINATION</b>	
	<input type="checkbox"/> <b>OTHER</b>	
	OTHER: <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> MIRU PETE MARTIN BUCKET RIG. DRILLED 20" CONDUCTOR HOLE TO 40'. RAN 14" 36.7# SCHEUDLE 10 PIPE. CMT W/28 SX READY MIX. SPUD WELL ON 10/06/2011 AT 1200 HRS.		
<b>Accepted by the          Utah Division of          Oil, Gas and Mining          FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Sheila Wopsock	<b>PHONE NUMBER</b> 435 781-7024	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 10/7/2011	

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: KERR MCGEE OIL & GAS ONSHORE LP Operator Account Number: N 2995  
Address: 1368 SOUTH 1200 EAST  
city VERNAL  
state UT zip 84078 Phone Number: (435) 781-7024

**Well 1**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751604	NBU 922-36O4BS		SWSE	36	9S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	10/6/2011		<u>10/14/11</u>		
<b>Comments:</b> MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL ON 10/06/2011 AT 1200 HRS. <u>BHL = SESE</u>							

**Well 2**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304751600	NBU 922-36J1CS		SWSE	36	9S	22E	UINTAH
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<u>B</u>	99999	<u>2900</u>	10/6/2011		<u>10/14/11</u>		
<b>Comments:</b> MIRU PETE MARTIN BUCKET RIG. <u>WSMVD</u> SPUD WELL ON 10/06/2011 AT 1530 HRS. <u>BHL = NWSE</u>							

**Well 3**

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
<b>Comments:</b>							

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

SHEILA WOPSOCK

Name (Please Print)

Signature

REGULATORY ANALYST

10/7/2011

Title

Date

**RECEIVED**

OCT 11 2011

DIV. OF OIL, GAS & MINING

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22650
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 922-3604BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1250 FSL 2103 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWSE Section: 36 Township: 09.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047516040000
<b>PHONE NUMBER:</b> 720 929-6515 Ext		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 10/27/2011	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> ALTER CASING	
	<input type="checkbox"/> CHANGE TUBING	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> OTHER: <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> MIRU AIR RIG ON OCT. 24, 2011. DRILLED SURFACE HOLE TO 2397'. RAN SURFACE CASING AND CEMENTED. WELL IS WAITING ON ROTARY RIG. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH WELL COMPLETION REPORT.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 10/31/2011	

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22650
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 922-3604BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1250 FSL 2103 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWSE Section: 36 Township: 09.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047516040000
<b>PHONE NUMBER:</b> 720 929-6515 Ext		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 10/17/2011  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> ACIDIZE  <input checked="" type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </div> <div style="width: 33%;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </div> <div style="width: 33%;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <input style="width: 100px;" type="text"/> </div> </div>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> The operator requests changes to the production casing program to Ultra DQX/LTC, the drilling program to allow for the use of a Closed Loop system, and requests a variance for FIT Requirements. Please see attached explanation. Thank you.		
<b>Approved by the Utah Division of Oil, Gas and Mining</b>  <b>Date:</b> 11/10/2011 <b>By:</b> <u>Derek Duff</u>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske		<b>PHONE NUMBER</b> 720 929-6304
<b>SIGNATURE</b> N/A		<b>TITLE</b> Regulatory Analyst
<b>DATE</b> 10/17/2011		

NBU 922-36O4BS

Drilling Program  
1 of 7**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 922-36O4BS**

Surface:	1250 FSL / 2103 FEL	SWSE
BHL:	415 FSL / 1814 FEL	SWSE

Section 36 T9S R22E

Uintah County, Utah  
Mineral Lease: ML-22650

**ONSHORE ORDER NO. 1****DRILLING PROGRAM**

1. & 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 - Surface	
Green River	1,101'	
Birds Nest	1,369'	Water
Mahogany	1,736'	Water
Wasatch	4,164'	Gas
Mesaverde	6,333'	Gas
MVU2	7,343'	Gas
MVL1	7,924'	Gas
TVD	8,568'	
TD	8,695'	

3. **Pressure Control Equipment** (Schematic Attached)

Please refer to the attached Drilling Program

4. **Proposed Casing & Cementing Program:**

Please refer to the attached Drilling Program

5. **Drilling Fluids Program:**

Please refer to the attached Drilling Program

6. **Evaluation Program:**

Please refer to the attached Drilling Program



**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8568' TVD, approximately equals  
5,484 psi 0.64 psi/ft = actual bottomhole gradient

---

Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,587 psi (bottom hole pressure  
minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

---

Per Onshore Order No. 2 - Max Anticipated Surf. Press. (MASP) = (Pore Pressure at next csg point -  
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

Drilling is planned to commence immediately upon approval of this application.

**9. Variances:**

Please refer to the attached Drilling Program.  
Onshore Order #2 – Air Drilling Variance

Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2

- Blowout Prevention Equipment (BOPE) requirements;
- Mud program requirements; and
- Special drilling operation (surface equipment placement) requirements associated with air drilling.

This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.

The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.

More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.

**Background**

In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.

Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.

#### **Variance for BOPE Requirements**

The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.

#### **Variance for Mud Material Requirements**

Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.

#### **Variance for Special Drilling Operation (surface equipment placement) Requirements**

Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.

Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.

Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and

on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.

**Variance for FIT Requirements**

KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**Conclusion**

The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

Please refer to the attached Drilling Program.



GEOLOGICAL			MECHANICAL		
LOGS	FORMATION		HOLE SIZE	CASING SIZE	MUD WEIGHT
	TOPS	DEPTH			
		40'		14"	
			12-1/4"	8-5/8", 28#, IJ-55, LTC	Air mist
		200'			
			11"	8-5/8", 28#, IJ-55, LTC	Air mist
All water flows encountered while drilling will be reported to the appropriate agencies.					
	Green River @	1,101'			
	Top of Birds Nest @	1,369'			
	Mahogany @	1,736'			
	Preset f/ GL @	2,190' TVD			
Note: 11" surface hole will usually be drilled ±400' below the lost circulation zone (aka bird's nest). Drilled depth may be ±200' of the estimated set depth depending on the actual depth of the loss zone.					
	Wasatch @	4,164'			
Mud logging program TBD Cased hole logging program from TD - surf csg			7-7/8"	4-1/2" 11.6# I-80 Ultra DQX/LTC csg	Water / Fresh Water Mud 8.3-12.5 ppg
	Mverde @	6,333' TVD			
	MVU2 @	7,343' TVD			
	MVU1 @	7,924' TVD			
Max anticipated Mud required		8,568' TVD			
12.5 ppg	TD @	8,695' MD			

**RECEIVED** Oct. 17, 2011



## KERR-McGEE OIL & GAS ONSHORE LP

### DRILLING PROGRAM

**CASING PROGRAM**

						DESIGN FACTORS			
						LTC		DQX	
	SIZE	INTERVAL	WT.	GR.	CPLG.	BURST	COLLAPSE	TENSION	
CONDUCTOR	14"	0-40'				3,390	1,880	348,000	N/A
SURFACE	8-5/8"	0 to 2,190	28.00	IJ-55	LTC	2.47	1.83	6.48	N/A
						7,780	6,350	223,000	267,035
PRODUCTION	4-1/2"	0 to 5,000	11.60	I-80	DQX	1.11	1.14		3.27
	4-1/2"	5,000 to 8,695'	11.60	I-80	LTC	1.11	1.14	6.43	

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**CEMENT PROGRAM**

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT		YIELD
SURFACE	LEAD	500'	Premium cmt + 2% CaCl	180	60%	15.80		1.15
Option 1			+ 0.25 pps flocele					
	TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt	270	0%	15.80		1.15
			+ 2% CaCl + 0.25 pps flocele					
SURFACE		NOTE: If well will circulate water to surface, option 2 will be utilized						
Option 2	LEAD	1,690'	65/35 Poz + 6% Gel + 10 pps gilsonite	160	35%	11.00		3.82
			+ 0.25 pps Flocele + 3% salt BWOW					
	TAIL	500'	Premium cmt + 2% CaCl	150	35%	15.80		1.15
			+ 0.25 pps flocele					
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80		1.15
PRODUCTION	LEAD	3,655'	Premium Lite II +0.25 pps	270	20%	11.00		3.38
			celloflake + 5 pps gilsonite + 10% gel					
			+ 0.5% extender					
	TAIL	5,040'	50/50 Poz/G + 10% salt + 2% gel	1,190	35%	14.30		1.31
			+ 0.1% R-3					

\*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

\*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

**FLOAT EQUIPMENT & CENTRALIZERS**

SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe
PRODUCTION	Float shoe, 1 jt, float collar. No centralizers will be used.

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:**

Nick Spence / Danny Showers / Chad Loesel

DATE:

**DRILLING SUPERINTENDENT:**

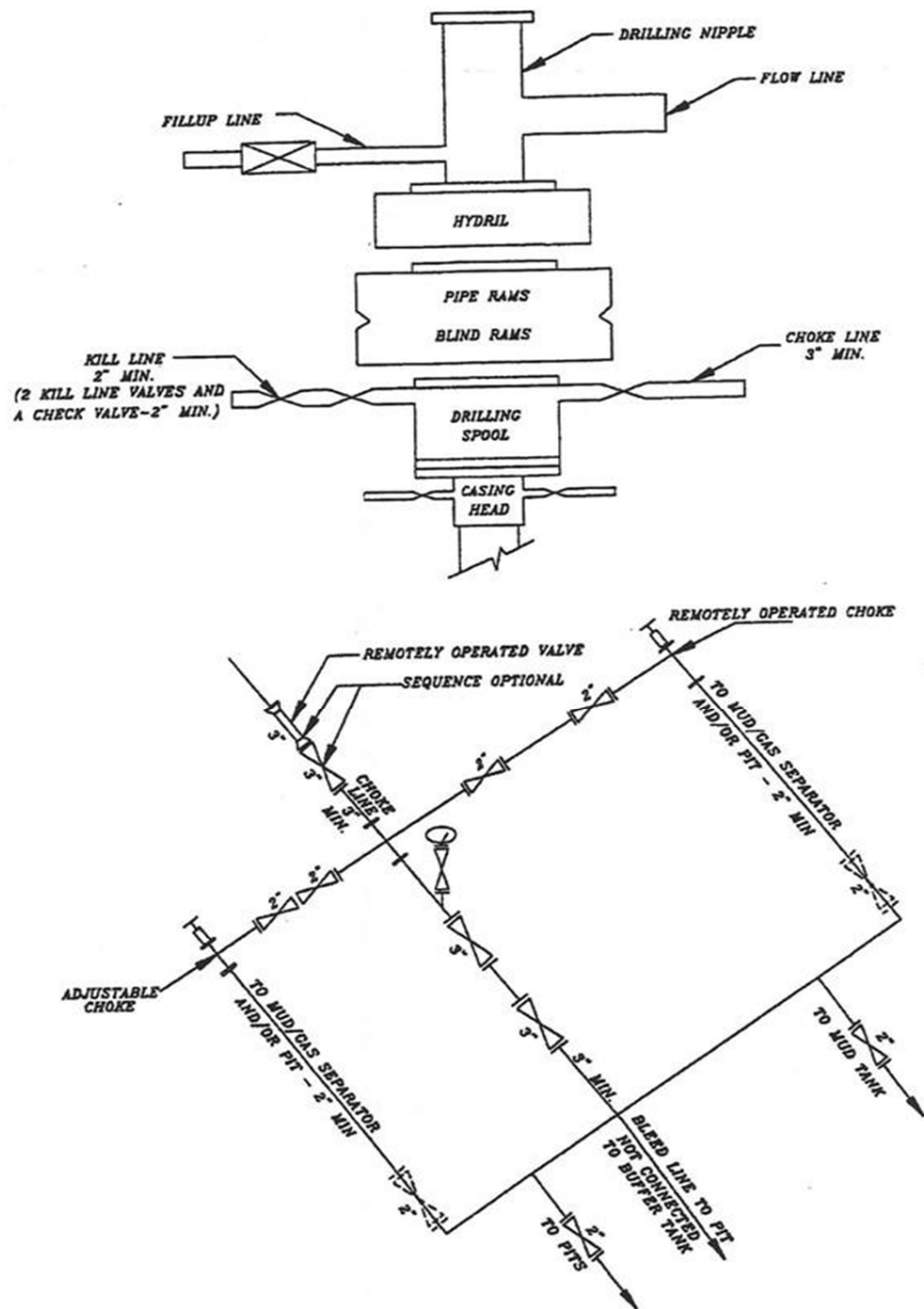
Kenny Gathings / Lovel Young

DATE:

**RECEIVED** Oct. 17, 2011



NBU 922-36O4BS

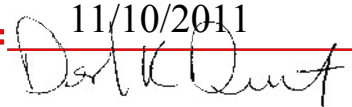
Drilling Program  
7 of 7EXHIBIT A  
NBU 922-36O4BS

SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK

Requested Drilling Options:

Kerr-McGee will use either a closed loop drilling system that will require one pit and one cuttings storage area to be constructed on the drilling pad or a traditional drilling operation with one pit used for drilling and completion operations. The cuttings storage area will be used to contain only the de-watered drill cuttings and will be lined and bermed to prevent any liquid runoff. The drill cuttings will be buried in the completion pit once completion operations are completed according to traditional pit closure standards. The pit will be constructed to allow for completion operations. The completion operations pit will be lined with a synthetic material 20 mil or thicker and will be used for the completing of the wells on the pad or used as part of our Aandarko Completions Transportation System (ACTS). Using the closed loop drilling system will allow Kerr-McGee to decrease the amount of disturbance/footprint on location compared to a single large drilling/completions pit.

If Kerr-McGee does not use a closed loop drilling system, it will construct a traditional drilling/completions pit to contain drill cuttings and for use in completion operations. The pit will be lined with a synthetic material 20 mil or thicker. The drill cuttings will be buried in the pit using traditional pit closure standards.

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> ML-22650
<b>1. TYPE OF WELL</b> Gas Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> KERR-MCGEE OIL & GAS ONSHORE, L.P.		<b>7. UNIT or CA AGREEMENT NAME:</b> NATURAL BUTTES
<b>3. ADDRESS OF OPERATOR:</b> P.O. Box 173779 1099 18th Street, Suite 600, Denver, CO, 80217 3779		<b>8. WELL NAME and NUMBER:</b> NBU 922-3604BS
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 1250 FSL 2103 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWSE Section: 36 Township: 09.0S Range: 22.0E Meridian: S		<b>9. API NUMBER:</b> 43047516040000
<b>PHONE NUMBER:</b> 720 929-6515 Ext		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 10/17/2011  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> ACIDIZE  <input checked="" type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </div> <div style="width: 33%;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </div> <div style="width: 33%;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <span style="border: 1px solid black; display: inline-block; width: 100px; height: 15px;"></span> </div> </div>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b>  The operator requests changes to the production casing program to Ultra DQX/LTC, the drilling program to allow for the use of a Closed Loop system, and requests a variance for FIT Requirements. Please see attached explanation. Thank you.		
<div style="color: red; font-weight: bold;">             Approved by the              Utah Division of              Oil, Gas and Mining           </div> <div style="color: red; font-weight: bold;">             Date: <u>11/10/2011</u>              By: <u></u> </div>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske		<b>PHONE NUMBER</b> 720 929-6304
<b>SIGNATURE</b> N/A		<b>TITLE</b> Regulatory Analyst
<b>DATE</b> 10/17/2011		

NBU 922-36O4BS

Drilling Program  
1 of 7**Kerr-McGee Oil & Gas Onshore. L.P.****NBU 922-36O4BS**

Surface: 1250 FSL / 2103 FEL SWSE  
 BHL: 415 FSL / 1814 FEL SWSE

Section 36 T9S R22E

Uintah County, Utah  
 Mineral Lease: ML-22650

**ONSHORE ORDER NO. 1****DRILLING PROGRAM**

1. & 2. **Estimated Tops of Important Geologic Markers:**  
**Estimated Depths of Anticipated Water, Oil, Gas, or Mineral Formations:**

<u>Formation</u>	<u>Depth</u>	<u>Resource</u>
Uinta	0 - Surface	
Green River	1,101'	
Birds Nest	1,369'	Water
Mahogany	1,736'	Water
Wasatch	4,164'	Gas
Mesaverde	6,333'	Gas
MVU2	7,343'	Gas
MVL1	7,924'	Gas
TVD	8,568'	
TD	8,695'	

3. **Pressure Control Equipment** (Schematic Attached)

Please refer to the attached Drilling Program

4. **Proposed Casing & Cementing Program:**

Please refer to the attached Drilling Program

5. **Drilling Fluids Program:**

Please refer to the attached Drilling Program

6. **Evaluation Program:**

Please refer to the attached Drilling Program

**7. Abnormal Conditions:**

Maximum anticipated bottom hole pressure calculated at 8568' TVD, approximately equals  
5,484 psi 0.64 psi/ft = actual bottomhole gradient

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Maximum Anticipated Bottom Hole Pressure (MABHP) = Pore Pressure at TD

Maximum anticipated surface pressure equals approximately 3,587 psi (bottom hole pressure  
minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot, per Onshore Order No. 2).

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Per Onshore Order No. 2 - Max Anticipated Surf. Press. (MASP) = (Pore Pressure at next csg point -  
(0.22 psi/ft-partial evac gradient x TVD of next csg point))

**8. Anticipated Starting Dates:**

Drilling is planned to commence immediately upon approval of this application.

**9. Variances:**

Please refer to the attached Drilling Program.  
Onshore Order #2 – Air Drilling Variance

Kerr-McGee Oil & Gas Onshore LP (KMG) respectfully requests a variance to several requirements associated with air drilling outlined in Onshore Order 2

- Blowout Prevention Equipment (BOPE) requirements;
- Mud program requirements; and
- Special drilling operation (surface equipment placement) requirements associated with air drilling.

This Standard Operating Practices addendum provides supporting information as to why KMG current air drilling practices for constructing the surface casing hole should be granted a variance to Onshore Order 2 air drilling requirements.

The reader should note that the air rig is used only to construct a stable surface casing hole through a historically difficult lost circulation zone. A conventional rotary rig follows the air rig, and is used to drill and construct the majority of the wellbore.

More notable, KMG has used the air rig layout and procedures outlined below to drill the surface casing hole in approximately 675 wells without incident of blow out or loss of life.

**Background**

In a typical well, KMG utilizes an air rig for drilling the surface casing hole, an interval from the surface to surface casing depths, which varies in depth from 1,700 to 2,800 feet. The air rig drilling operation does not drill through productive or over pressured formations in KMG field, but does penetrate the Uinta and Green River Formations. The purpose of the air drilling operation is to overcome the severe loss circulation zone in the Green River known as the Bird's Nest while creating a stable hole for the surface casing. The surface casing hole is generally drilled to approximately 500 feet below the Bird's Nest.



Before the surface air rig is mobilized, a rathole rig is utilized to set and cement conductor pipe through a competent surface formation. Generally, the conductor is set at 40 feet. In some cases, conductor may be set deeper in areas that the surface formation is not found competent. This rig also drills the rat and mouse holes in preparation for the surface casing and production string drilling operations.

The air rig is then mobilized to drill the surface casing hole by drilling a 12 1/4 inch hole for the first 200 feet, then will drill a 11 inch hole to just above the Bird's Nest interval with an air hammer. The hammer is then tripped and replaced with a 11 inch tri-cone bit. The tri-cone bit is used to drill to the surface casing point, approximately 500 feet below the loss circulation zone (Bird's Nest). The 8-5/8 inch surface casing is then run and cemented in place, thereby isolating the lost circulation zone.

KMG fully appreciates Onshore Order 2 well control and safety requirements associated with a typical air drilling operations. However, the requirements of Onshore Order 2 are excessive with respect to the air rig layout and drilling operation procedures that are currently in practice to drill and control the surface casing hole in KMG Fields.

#### **Variance for BOPE Requirements**

The air rig operation utilizes a properly lubricated and maintained air bowl diverter system which diverts the drilling returns to a six-inch blooie line. The air bowl is the only piece of BOPE equipment which is installed during drilling operations and is sufficient to contain the air returns associated with this drilling operation. As was discussed earlier, the drilling of the surface hole does not encounter any over pressured or productive zones, and as a result standard BOPE equipment should not be required. In addition, standard drilling practices do not support the use of BOPE on 40 feet of conductor pipe.

#### **Variance for Mud Material Requirements**

Onshore Order 2 also states that sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring adequate well control. Once again, the surface hole drilling operations does not encounter over pressured or productive intervals, and as a result there is not a need to control pressure in the surface hole with a mud system. Instead of mud, the air rigs utilize water from the reserve pit for well control, if necessary. A skid pump which is located near the reserve pit (see attachment) will supply the water to the well bore.

#### **Variance for Special Drilling Operation (surface equipment placement) Requirements**

Onshore Order 2 requires specific safety distances or setbacks for the placement of associated standard air drilling equipment, wellbore, and reserve pits. The air rigs used to drill the surface holes are not typical of an air rig used to drill a producing hole in other parts of the US. These are smaller in nature and designed to fit a KMG location. The typical air rig layout for drilling surface hole in the field is attached.

Typically the blooie line discharge point is required to be 100 feet from the well bore. In the case of a KMG well, the reserve pit is only 45 feet from the rig and is used for the drill cuttings. The blooie line, which transports the drill cuttings from the well to the reserve pit, subsequently discharges only 45 feet from the well bore.

Typically the air rig compressors are required to be located in the opposite direction from the blooie line and a minimum of 100 feet from the well bore. At the KMG locations, the air rig compressors are approximately 40 feet from the well bore and approximately 60 feet from the blooie line discharge due to the unique air rig design. The air compressors (see attachment) are located on the rig (1250 cfm) and

on a standby trailer (1170 cfm). A booster sits between the two compressors and boosts the output from 350 psi to 2000 psi. The design does put the booster and standby compressor opposite from the blooie line.

Lastly, Onshore Order 2 addresses the need for an automatic igniter or continuous pilot light on the blooie line. The air rig does not utilize an igniter as the surface hole drilling operation does not encounter productive formations.

**Variance for FIT Requirements**

KMG also respectfully requests a variance to Onshore Order 2, Section III, Part Bi, for the pressure integrity test (PIT, also known as a formation integrity test (FIT)). This well is not an exploratory well and is being drilled in an area where the formation integrity is well known. Additionally, when an FIT is run with the mud weight as required, the casing shoe frequently breaks down and causes subsequent lost circulation when drilling the entire depth of the well.

**Conclusion**

The air rig operating procedures and the attached air rig layout have effectively maintained well control while drilling the surface holes in KMG Fields. KMG respectfully requests a variance from Onshore Order 2 with respect to air drilling well control requirements as discussed above.

**10. Other Information:**

Please refer to the attached Drilling Program.



**KERR-McGEE OIL & GAS ONSHORE LP**  
**DRILLING PROGRAM**

COMPANY NAME	KERR-McGEE OIL & GAS ONSHORE LP					DATE	October 17, 2011		
WELL NAME	<b>NBU 922-3604BS</b>					TD	8,568'	TVD	8,695' MD
FIELD	Natural Buttes		COUNTY	Uintah	STATE	Utah	FINISHED ELEVATION		4972.9
SURFACE LOCATION	SWSE	1250 FSL	2103 FEL	Sec 36	T 9S	R 22E			
	Latitude: 39.988703		Longitude: -109.385700		NAD 27				
BTM HOLE LOCATION	SWSE	415 FSL	1814 FEL	Sec 36	T 9S	R 22E			
	Latitude: 39.986410		Longitude: -109.384657		NAD 27				
OBJECTIVE ZONE(S)	Wasatch/Mesaverde								
ADDITIONAL INFO	Regulatory Agencies: UDOGM (Minerals), UDOGM (Surface), UDOGM Tri-County Health Dept.								

GEOLOGICAL			MECHANICAL		
LOGS	FORMATION		HOLE SIZE	CASING SIZE	MUD WEIGHT
	TOPS	DEPTH			
		40'		14"	
			12-1/4"	8-5/8", 28#, IJ-55, LTC	Air mist
		200'			
			11"	8-5/8", 28#, IJ-55, LTC	Air mist
All water flows encountered while drilling will be reported to the appropriate agencies.					
	Green River @	1,101'			
	Top of Birds Nest @	1,369'			
	Mahogany @	1,736'			
	Preset f/ GL @	2,190' TVD			
Note: 11" surface hole will usually be drilled ±400' below the lost circulation zone (aka bird's nest). Drilled depth may be ±200' of the estimated set depth depending on the actual depth of the loss zone.					
	Wasatch @	4,164'			
Mud logging program TBD Cased hole logging program from TD - surf csg			7-7/8"	4-1/2" 11.6# I-80 Ultra DQX/LTC csg	Water / Fresh Water Mud 8.3-12.5 ppg
	Mverde @	6,333' TVD			
	MVU2 @	7,343' TVD			
	MVU1 @	7,924' TVD			
Max anticipated Mud required		8,568' TVD			
12.5 ppg	TD @	8,695' MD			

**RECEIVED** Oct. 17, 2011



## KERR-McGEE OIL & GAS ONSHORE LP

### DRILLING PROGRAM

**CASING PROGRAM**

	SIZE	INTERVAL	WT.	GR.	CPLG.	DESIGN FACTORS			
						LTC		DQX	
						BURST	COLLAPSE	TENSION	
CONDUCTOR	14"	0-40'				3,390	1,880	348,000	N/A
SURFACE	8-5/8"	0 to 2,190	28.00	IJ-55	LTC	2.47	1.83	6.48	N/A
						7,780	6,350	223,000	267,035
PRODUCTION	4-1/2"	0 to 5,000	11.60	I-80	DQX	1.11	1.14		3.27
	4-1/2"	5,000 to 8,695'	11.60	I-80	LTC	1.11	1.14	6.43	

**Surface Casing:**

(Burst Assumptions: TD = 12.5 ppg) 0.73 psi/ft = frac gradient @ surface shoe

Fracture at surface shoe with 0.1 psi/ft gas gradient above

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**Production casing:**

(Burst Assumptions: Pressure test with 8.4ppg @ 7000 psi) 0.64 psi/ft = bottomhole gradient

(Collapse Assumption: Fully Evacuated Casing, Max MW) (Tension Assumptions: Air Weight of Casing\*Buoys.Fact. of water)

**CEMENT PROGRAM**

		FT. OF FILL	DESCRIPTION	SACKS	EXCESS	WEIGHT	YIELD
SURFACE	LEAD	500'	Premium cmt + 2% CaCl	180	60%	15.80	1.15
Option 1			+ 0.25 pps flocele				
	TOP OUT CMT (6 jobs)	1,200'	20 gals sodium silicate + Premium cmt	270	0%	15.80	1.15
			+ 2% CaCl + 0.25 pps flocele				
SURFACE			NOTE: If well will circulate water to surface, option 2 will be utilized				
Option 2	LEAD	1,690'	65/35 Poz + 6% Gel + 10 pps gilsonite	160	35%	11.00	3.82
			+ 0.25 pps Flocele + 3% salt BWOW				
	TAIL	500'	Premium cmt + 2% CaCl	150	35%	15.80	1.15
			+ 0.25 pps flocele				
	TOP OUT CMT	as required	Premium cmt + 2% CaCl	as req.		15.80	1.15
PRODUCTION	LEAD	3,655'	Premium Lite II +0.25 pps	270	20%	11.00	3.38
			celloflake + 5 pps gilsonite + 10% gel				
			+ 0.5% extender				
	TAIL	5,040'	50/50 Poz/G + 10% salt + 2% gel	1,190	35%	14.30	1.31
			+ 0.1% R-3				

\*Substitute caliper hole volume plus 0% excess for LEAD if accurate caliper is obtained

\*Substitute caliper hole volume plus 10% excess for TAIL if accurate caliper is obtained

**FLOAT EQUIPMENT & CENTRALIZERS**

SURFACE	Guide shoe, 1 jt, insert float. Centralize first 3 joints with bow spring centralizers. Thread lock guide shoe
PRODUCTION	Float shoe, 1 jt, float collar. No centralizers will be used.

**ADDITIONAL INFORMATION**

Test casing head to 750 psi after installing. Test surface casing to 1,500 psi prior to drilling out.

BOPE: 11" 5M with one annular and 2 rams. The BOPE will be installed before the production hole is drilled and tested to 5,000 psi (annular to 2,500 psi) prior to drilling out the surface casing shoe. Record on chart recorder and tour sheet. Function test rams on each trip. Maintain safety valve and inside BOP on rig floor at all times. Most rigs have top drives; however, if used, the Kelly is to be equipped with upper and lower kelly valves.

Surveys will be taken at 1,000' minimum intervals.

Most rigs have PVT System for mud monitoring. If no PVT is available, visual monitoring will be utilized.

**DRILLING ENGINEER:**

Nick Spence / Danny Showers / Chad Loesel

DATE:

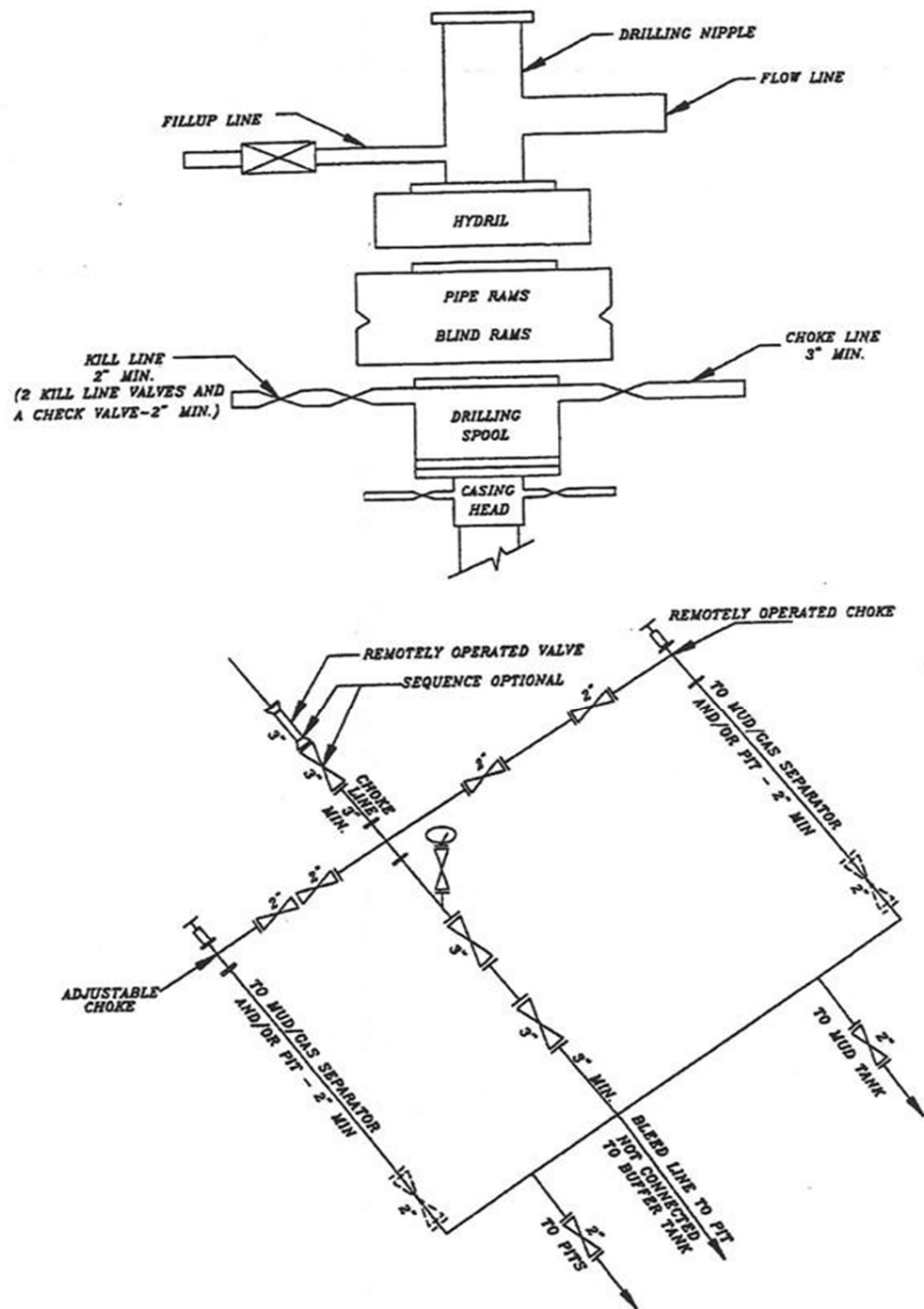
**DRILLING SUPERINTENDENT:**

Kenny Gathings / Lovel Young

DATE:

**RECEIVED** Oct. 17, 2011

NBU 922-36O4BS

Drilling Program  
7 of 7EXHIBIT A  
NBU 922-36O4BS

SCHEMATIC DIAGRAM OF 5,000 PSI BOP STACK



Requested Drilling Options:

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<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 12/4/2011	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> CHANGE WELL TYPE	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> NEW CONSTRUCTION	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> PLUG BACK	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> TEMPORARY ABANDON	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WATER DISPOSAL	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> OTHER: <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> MIRU ROTARY RIG. FINISHED DRILLING FROM 2397' TO 8720' ON DEC. 2, 2011. RAN 4-1/2" 11.6# I-80 PRODUCTION CASING. CEMENTED PRODUCTION CASING. RELEASED ENSIGN RIG 139 ON DEC. 4, 2011 @ 12:00 HRS. DETAILS OF CEMENT JOB WILL BE INCLUDED WITH THE WELL COMPLETION REPORT. WELL IS WAITING ON FINAL COMPLETION ACTIVITIES.		
<div style="display: flex; justify-content: space-between;"> <div> <b>Accepted by the</b>  <b>Utah Division of</b>  <b>Oil, Gas and Mining</b> </div> <div style="font-size: 2em; font-weight: bold;">FOR RECORD ONLY</div> </div>		
<b>NAME (PLEASE PRINT)</b> Jaime Scharnowske	<b>PHONE NUMBER</b> 720 929-6304	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 12/5/2011	

State of Utah - Notification Form

Operator Anadarko Petroleum Rig Name/# Ensign 139  
Submitted By KENNY MORRIS Phone Number  
435- 828-0984  
Well Name/Number NBU 922-36O4BS  
Qtr/Qtr SESW Section 36 Township 9S Range 22E  
Lease Serial Number ML-22650  
API Number 43047516040000

Casing – Time casing run starts, not cementing times.

☒ Production Casing  
☐ Other

Date/Time 12/3/2011 06:00 AM ☒ PM ☐

BOPE

☐ Initial BOPE test at surface casing point  
☐ Other

Date/Time \_\_\_\_\_ AM ☐ PM ☐

Rig Move

Location To:

Date/Time \_\_\_\_\_ AM ☐ PM ☐

RECEIVED

DEC 02 2011

DIV. OF OIL, GAS & MINING

Remarks WILL RUN 4.5 PROD CSG SATURDAY MORNING  
12/3/2011

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<b>PHONE NUMBER:</b> 720 929-6514		<b>9. FIELD and POOL or WILDCAT:</b> NATURAL BUTTES
<b>COUNTY:</b> UINTAH		<b>STATE:</b> UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 1/21/2012	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> CHANGE WELL NAME	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	
	<input type="checkbox"/> CONVERT WELL TYPE	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> NEW CONSTRUCTION	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> PLUG BACK	
	<input checked="" type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> TEMPORARY ABANDON	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WATER DISPOSAL	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> OTHER: <input style="width: 100px;" type="text"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. THE SUBJECT WELL WAS PLACED ON PRODUCTION ON 01/21/2012 AT 1730 HRS. THE CHRONOLOGICAL WELL HISTORY WILL BE SUBMITTED WITH THE WELL COMPLETION REPORT.		
Accepted by the Utah Division of Oil, Gas and Mining <b>FOR RECORD ONLY</b> January 23, 2012		
<b>NAME (PLEASE PRINT)</b> Sheila Wopsock	<b>PHONE NUMBER</b> 435 781-7024	<b>TITLE</b> Regulatory Analyst
<b>SIGNATURE</b> N/A	<b>DATE</b> 1/23/2012	

STATE OF UTAH  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

AMENDED REPORT ☐ FORM 8  
(highlight changes)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ OTHER \_\_\_\_\_

b. TYPE OF WORK: NEW WELL ☒ HORIZ. LATS. ☐ DEEP-EN ☐ RE-ENTRY ☐ DIFF. RESVR. ☐ OTHER \_\_\_\_\_

2. NAME OF OPERATOR:  
KERR MCGEE OIL & GAS ONSHORE, L.P.

3. ADDRESS OF OPERATOR:  
P.O. BOX 173779 CITY DENVER STATE CO ZIP 80217 PHONE NUMBER: (720) 929-6304

4. LOCATION OF WELL (FOOTAGES)  
AT SURFACE: SWSE 1250 FSL 2103 FEL S36, T9S, R22E  
AT TOP PRODUCING INTERVAL REPORTED BELOW: SWSE 428 FSL 1825 FEL S36, T9S, R22E  
AT TOTAL DEPTH: SWSE 418 FSL 1805 FEL S36, T9S, R22E *BHL by HSM*

5. LEASE DESIGNATION AND SERIAL NUMBER:  
ML-22650

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT or CA AGREEMENT NAME  
UTU63047A

8. WELL NAME and NUMBER:  
NBU 922-3604BS

9. API NUMBER:  
4304751604

10. FIELD AND POOL, OR WILDCAT  
NATURAL BUTTES

11. QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:  
SWSE 36 9S 22E S

12. COUNTY  
UINTAH

13. STATE  
UTAH

14. DATE SPURRED: 10/6/2011 15. DATE T.D. REACHED: 12/2/2011 16. DATE COMPLETED: 1/21/2012 ABANDONED ☐ READY TO PRODUCE ☒

17. ELEVATIONS (DF, RKB, RT, GL):  
4968 GL

18. TOTAL DEPTH: MD 8,720 TVD 8,594 19. PLUG BACK T.D.: MD 8,656 TVD 8,530 20. IF MULTIPLE COMPLETIONS, HOW MANY? \*

21. DEPTH BRIDGE MD PLUG SET: TVD

22. TYPE ELECTRIC AND OTHER MECHANICAL LOGS RUN (Submit copy of each)  
CBL/GR/COLLARS-BHV-SD/DSN/ACTR

23. WAS WELL CORED? NO ☒ YES ☐ (Submit analysis)  
WAS DST RUN? NO ☒ YES ☐ (Submit report)  
DIRECTIONAL SURVEY? NO ☐ YES ☒ (Submit copy)

24. CASING AND LINER RECORD (Report all strings set in well)

HOLE SIZE	SIZE/GRADE	WEIGHT (#/ft.)	TOP (MD)	BOTTOM (MD)	STAGE CEMENTER DEPTH	CEMENT TYPE & NO. OF SACKS	SLURRY VOLUME (BBL)	CEMENT TOP **	AMOUNT PULLED
20"	14" STL	36.7#	0	40		28			
11	8 5/8" IJ-55	28#	0	2,407		900		0	
7 7/8"	4 1/2" I-80	11.6#	0	8,699		1,440		2196	

25. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"	8,010							

26. PRODUCING INTERVALS

FORMATION NAME	TOP (MD)	BOTTOM (MD)	TOP (TVD)	BOTTOM (TVD)	INTERVAL (Top/Bot - MD)	SIZE	NO. HOLES	PERFORATION STATUS
(A) WASATCH	5,670	5,807			5,670 5,807	0.36	24	Open <input checked="" type="checkbox"/> Squeezed <input type="checkbox"/>
(B) MESAVERDE688	6,882	8,514			6,882 8,514	0.36	168	Open <input checked="" type="checkbox"/> Squeezed <input type="checkbox"/>
(C)								Open <input type="checkbox"/> Squeezed <input type="checkbox"/>
(D)								Open <input type="checkbox"/> Squeezed <input type="checkbox"/>

27. PERFORATION RECORD

28. ACID, FRACTURE, TREATMENT, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND TYPE OF MATERIAL
5670-8514	PUMP 9,745 BBLs SLICK H2O & 210,627 LBS 30/50 OTTAWA SAND 8 STAGES

29. ENCLOSED ATTACHMENTS:

- ☐ ELECTRICAL/MECHANICAL LOGS ☐ GEOLOGIC REPORT ☐ DST REPORT ☒ DIRECTIONAL SURVEY  
☐ SUNDRY NOTICE FOR PLUGGING AND CEMENT VERIFICATION ☐ CORE ANALYSIS ☐ OTHER: \_\_\_\_\_

30. WELL STATUS:

PROD



## 31. INITIAL PRODUCTION

## INTERVAL A (As shown in Item #26)

DATE FIRST PRODUCED: 1/21/2012	TEST DATE: 1/24/2012	HOURS TESTED: 24	TEST PRODUCTION RATES: →	OIL – BBL: 0	GAS – MCF: 2,720	WATER – BBL: 510	PROD. METHOD: FLOWING
CHOKE SIZE: 20/64	TBG. PRESS. 1,383	CSG. PRESS. 1,720	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS: PROD

## INTERVAL B (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## INTERVAL C (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## INTERVAL D (As shown in Item #26)

DATE FIRST PRODUCED:	TEST DATE:	HOURS TESTED:	TEST PRODUCTION RATES: →	OIL – BBL:	GAS – MCF:	WATER – BBL:	PROD. METHOD:
CHOKE SIZE:	TBG. PRESS.	CSG. PRESS.	API GRAVITY	BTU – GAS	GAS/OIL RATIO	24 HR PRODUCTION RATES: →	INTERVAL STATUS:

## 32. DISPOSITION OF GAS (Sold, Used for Fuel, Vented, Etc.)

## 33. SUMMARY OF POROUS ZONES (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

## 34. FORMATION (Log) MARKERS:

Formation	Top (MD)	Bottom (MD)	Descriptions, Contents, etc.	Name	Top (Measured Depth)
				GREEN RIVER	1,143
				BIRD'S NEST	1,423
				MAHOGANY	1,937
				WASATCH	4,298
				MESAVERDE	6,492

## 35. ADDITIONAL REMARKS (Include plugging procedure)

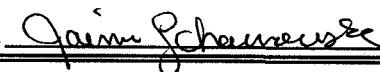
The first 210' of the surface hole was drilled with a 12 1/4" bit. The remainder of surface hole was drilled with an 11" bit. Attached is the chronological well history, perforation report & final survey. DQX csg was run from surface to 5,026'; LTC csg was run from 5026' to 8699'.

## 36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.

NAME (PLEASE PRINT) JAIME SCHARNOWSKE

TITLE REGULATORY ANALYST

SIGNATURE



DATE

2/23/2012

This report must be submitted within 30 days of

- completing or plugging a new well
- drilling horizontal laterals from an existing well bore
- recompleting to a different producing formation

- reentering a previously plugged and abandoned well
- significantly deepening an existing well bore below the previous bottom-hole depth
- drilling hydrocarbon exploratory holes, such as core samples and stratigraphic tests

\* ITEM 20: Show the number of completions if production is measured separately from two or more formations.

\*\* ITEM 24: Cement Top – Show how reported top(s) of cement were determined (circulated (CIR), calculated (CAL), cement bond log (CBL), temperature survey (TS)).

Send to: Utah Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801

Phone: 801-538-5340

Fax: 801-359-3940

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-3604BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-360 PAD

Rig Name No: ENSIGN 139/139, PROPETRO 12/12

Event: DRILLING

Start Date: 10/9/2011

End Date: 12/4/2011

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
10/24/2011	0:01 - 0:01	0.00	MIRU	12	E	P		10/31/2011 TOP OFF CMT
	0:01 - 0:01	0.00	MIRU					TRIPPLE A CEMENT TOP OFF ON 10/31/2011
	21:00 - 0:00	3.00	MIRU	01	C	P		SKID RIG 10' TO NBU 922-3604BS (WELL4 OF 5). INSTALL DIVERTOR HEAD AND BLUEY LINE. BUILD DITCH. SPOT IN RIG. SPOT IN CATWALK AND PIPE RACKS. RIG UP PIT PUMP. RIG UP PUMP. PRIME PUMP. INSPECT RIG. HELD PRE-SPUD SAFETY MEETING.
10/25/2011	0:00 - 0:30	0.50	DRLSUR	06	A	P		P/U MOTOR & 12 1/4 BIT SPUD 10/25/2011 @ 00:30
	0:30 - 2:00	1.50	DRLSUR	02	D	P		DRILL 12.25" HOLE 44'- 210'. (166', 83'/HR) RPM=45, WOB 5-15K. PSI ON/OFF 600/400. UP/DOWN/ ROT 20/20/20 K. DRAG 0 K. CIRC RESERVE W. 8.3# WATER. DRILL DOWN TO 210' W/ 6" COLLARS.
	2:00 - 4:00	2.00	DRLSUR	06	A	P		POOH, PU, 11" BIT AND DIRECTIONAL TOOLS, TIH T/ 210'
	4:00 - 14:30	10.50	DRLSUR	02	D	P		DRILL FROM 210 T/1320 (1110' @ 106' PER HR) WOB 15K, PSI ON/OFF 1320/1105 UP/DWN/ROT 60/49/53 RPM 55
	14:30 - 15:00	0.50	DRLSUR	05	F	S		UNLOAD HOLE & CHECK FOR WATER IN UPPER ZONES (NO WATER)
	15:00 - 17:00	2.00	DRLSUR	02	D	P		DRILL FROM 1320 T/1520 (200' @ 100' PER HR) WOB 15K, PSI ON/OFF 1390/1255 UP/DWN/ROT 67/50/60 RPM 55
	17:00 - 23:30	6.50	DRLSUR	06	B	S		POOH, L/D DIR. TOOLS & BIT. P/U CONE BIT & 4 DCs. RIH T/1070.
10/26/2011	23:30 - 0:00	0.50	DRLSUR	03	E	X		WASH & REAM T/1520.
	0:00 - 4:00	4.00	EVALPR	05	E	S		TAKE SAMPLES F/BIRDS NEST FORMATION
	4:00 - 10:00	6.00	DRLSUR	06	A	P		POOH, PU DIR. TOOLS, RIH T/1520
	10:00 - 10:30	0.50	DRLSUR	02	D	P		DRILL F/ 1520 T/1550 (50' @ 100' PER HR) WOB 15K, PSI ON/OFF 1390/1255 UP/DWN/ROT 67/50/60 RPM 55
	10:30 - 11:30	1.00	DRLSUR	22	L	Z		PROBLEMS W/DIRECTIONAL MWD TOOL
10/27/2011	11:30 - 20:00	8.50	DRLSUR	02	D	P		DRLG F/1550 T/2180 (630' @ 74' PER HR) WOB 20K, PSI ON/OFF 1540/1350, UP/DWN/ROT 78/59/68 RPM 50
	20:00 - 0:00	4.00	DRLSUR	08	A	Z		REMOVE & REPLACE HYDRAULIC LINE
	0:00 - 3:00	3.00	DRLSUR	08	A	Z		REPLACE HYDRAULIC LINES
	3:00 - 6:30	3.50	DRLSUR	02	D	P		DRLG F/2180 T/2397 (217' @ 62' PER HR) WOB 20K, PSI ON/OFF 1540/1350, UP/DWN/ROT 78/59/68 RPM TD@06:30
	6:30 - 8:30	2.00	DRLSUR	05	D	P		CIRC F/CSNG
	8:30 - 12:30	4.00	DRLSUR	06	D	P		LDDS, BHA & DIR. TOOLS
	12:30 - 14:00	1.50	DRLSUR	12	A	P		MOVE PIPE RACKS AND CATWALK. PULL DIVERTER HEAD. RIG UP TO RUN CSG. AND MOVE CSG INTO POSITION TO P/U.
	14:00 - 16:00	2.00	DRLSUR	12	C	P		RUN 54 JTS 8 5/8, 28# CSNG. LAND CSNG @ 16:00, SHOE SET @ 2397', BAFFLE SET @ 2351'

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-3604BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-360 PAD

Rig Name No: ENSIGN 139/139, PROPETRO 12/12

Event: DRILLING

Start Date: 10/9/2011

End Date: 12/4/2011

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
11/28/2011	16:00 - 16:30	0.50	DRLSUR	12	A	P		HOLD SAFETY MEETING, RUN 200' OF 1". RIG DOWN RIG MOVE OFF WELL, REBUILD DITCH. RIG UP CEMENT TRUCK, 2" HARD LINES,. CEMENT HEAD, LOAD PLUG.
	16:30 - 18:30	2.00	DRLSUR	12	E	P		PRESSURE TEST LINES TO 2000 PSI. PUMP 139 BBLs OF WATER AHEAD. PUMP 20 BBLs OF 8.3# GEL WATER AHEAD. PUMP (300 SX) 61.35 BBLs OF 15.8# 1.15 YD 5 GAL/SK PREMIUM CEMENT W/ 2% CALC. DROP PLUG ON FLY. DISPLACE W/ 146.7 BBLs OF H2O. NO CIRC THROUGH OUT. FINAL LIFT OF 400 PSI AT 4 BBL/MIN. BUMP PLUG W/750 PSI HELD FOR 5 MIN. FLOAT DID NOT HOLD. PUMP (150 SX) 30.64 BBLs OF SAME TAIL CEMENT W/ 4% CALC. DOWN BACKSIDE. SHUT DOWN AND CLEAN TRUCK. NO CEMENT TO SURFACE.
	18:30 - 20:30	2.00	DRLSUR	13	A	P		WOC , PUMP (150 SX) 30.64 BBLs 15.8 CMT DOWN BACKSIDE. NO RETURNS TO SURFACE
	20:30 - 22:30	2.00	DRLSUR	13	A	P		WOC , PUMP (150 SX) 30.64 BBLs 15.8 CMT DOWN BACKSIDE. NO RETURNS TO SURFACE
	22:30 - 0:00	1.50	DRLSUR	13	A	P		WOC , PUMP (150 SX) 30.64 BBLs 15.8 CMT DOWN BACKSIDE. NO RETURNS TO SURFACE RELEASE RIG @ 00:00 10/28/2011
	23:59 - 23:59	0.00	DRLSUR	12	E	P		TOP OFF CMT 10/31/2011
	12:00 - 14:00	2.00	MIRU	01	C	P		SKID ON,LEVEL DERRICK RURT,FLOW & FLARE LINES,CATWALK
	14:00 - 15:00	1.00	MIRU	14	A	P		NUBOP AND FUNCTION TEST BOP
	15:00 - 18:00	3.00	PRPSPD	09	A	P		CUT & SLIP DRLG LINE,PRE SPUD INSPECTION
	18:00 - 22:00	4.00	PRPSPD	15	A	P		BOP TEST W/ QUIK TEST,TEST FLOOR VALVES,RAMS,CHOKE,MANIFOLD,KILLLINE TO 5K,ANNULAR 2.5K,CSG 1500 F/30 MIN,250 LOWS
11/29/2011	22:00 - 22:30	0.50	PRPSPD	14	B	P		INSTALL WEARBUSHING
	22:30 - 0:00	1.50	PRPSPD	06	A	P		P/U BHA #1,SCRIBE DIRTOOLS TIH
	0:00 - 3:00	3.00	PRPSPD	06	A	P		TIH,LEVEL DERRICK,INSTALL ROT RUBBER,
	3:00 - 4:00	1.00	DRLPRO	02	F	P		DRILL CEMENT & FE F/2284 TO 2407'
	4:00 - 4:30	0.50	DRLPRO	02	D	P		SPUD 7.875 HOLE DRILL F/2407 TO 2491AVG 168
	4:30 - 5:00	0.50	DRLPRO	08	B	S		UNPLUG FLOWLINE JET LINE
	5:00 - 11:30	6.50	DRLPRO	02	D	P		DIRDRILL F/2491 TO 3397 =906 AVG 139 ,WOB 18/20,SPM 120,GPM 590,TRPM 132,TORQ 5/9K,SLIDE 125' 12%
	11:30 - 12:00	0.50	DRLPRO	07	A	P		RIG SERVICE
	12:00 - 0:00	12.00	DRLPRO	02	D	P		DIRDRILL F/3397 TO 5121=1723 AVG 143 ,WOB 18/20,SPM 120,GPM 590,BHRPM 132,TORQ 5/9K,SLIDE 60' 4%
	0:00 - 13:00	13.00	DRLPRO	02	D	P		DIRDRILL F/5121 TO 6475 =1354 AVG 104 ,WOB 18/20,SPM 120,GPM 590,BHRPM 132,TORQ 5/9K,SLIDE 72 5%
11/30/2011	13:00 - 15:30	2.50	DRLPRO	05	G	P		PUMP SWEEPS,DISPLACE HOLE W/10.9/42 MUD,STORE WATER
	15:30 - 16:00	0.50	DRLPRO	07	A	P		RIG SERVICE
	16:00 - 0:00	8.00	DRLPRO	02	D	P		DIRDRILL F/6475 TO 6970 =495 AVG 62 ,WOB 18/20,SPM 120,GPM 590,BHRPM 132,TORQ 5/9K,SLIDE 3%

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-36O4BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-36O PAD

Rig Name No: ENSIGN 139/139, PROPETRO 12/12

Event: DRILLING

Start Date: 10/9/2011

End Date: 12/4/2011

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
12/1/2011	0:00 - 10:30	10.50	DRLPRO	02	D	P		DIRDRILL F/6970 TO 7561 =591 AVG 56 ,WOB 18/20,SPM 100,GPM 490,BHRPM 114,TORQ 8/12K,SLIDE 65' 9%,MW 10.8/42 RIG SERVICE,FUNCTION BOP
	10:30 - 11:00	0.50	DRLPRO	07	A	P		
	11:00 - 0:00	13.00	DRLPRO	02	D	P		DIRDRILL F/7561 TO 8380 =819 AVG 63 ,WOB 18/20,SPM 100,GPM 490,BHRPM 114,TORQ 8/12K,SLIDE 0%,MW 11.4/42
12/2/2011	0:00 - 6:00	6.00	DRLPRO	02	D	P		DIRDRILL F/8380 TO TD 8720=340 AVG 56 ,WOB 18/20,SPM 100,GPM 490,BHRPM 114,TORQ 8/12K,SLIDE 0%,MW 11.5/42
	6:00 - 8:30	2.50	DRLPRO	05	C	P		FINAL SURVEY@8630 1.19DEG 144 AZI, ,FLOW CHECK,RAISE MW TO 11.6,CIRC BTMS UP F/ SHORTTRIP
	8:30 - 22:30	14.00	DRLPRO	06	E	P		PUMP OUT 10 STNDS,PUMP DRY PILL,SHORTTRIP TO SHOE F/ LOGS,TIGHT 6130,4350-3980,BREAK CIRC 4300 6400,SEVERAL TIGHT SPOTS OUT & IN CIRC BTMS UP F/ LOGS,20 BBL GAIN 250PSI LOSS ON BTMS UP,BUT NO FLARE
	22:30 - 0:00	1.50	DRLPRO	05	C	P		
12/3/2011	0:00 - 9:30	9.50	EVALPR	06	B	P		TOOH F/ LOGS,PUMP OUT 15 STNDS,,TIGHT SPOT 6650,57903820,PULL WEARRING
	9:30 - 14:00	4.50	EVALPR	11	D	P		SAFETY MT W/ HALCO R/U RUN TRIPLE COMBO TO LOGGERS DEPTH 8667
	14:00 - 0:00	10.00	CSG	12	C	P		SAFETY MT W/ FRANKS.R/U RUN 87 JTS 4.5" #11.6 I-80 AND 120 JT DQX TO SHOE DEPTH 8713'
12/4/2011	0:00 - 3:00	3.00	CSG	12	C	P		FINISH TORQ TURN DQX,SHOE SET @ 8713'
	3:00 - 4:00	1.00	CSG	05	D	P		CIRC BTMS UP F/CEMENT
	4:00 - 10:00	6.00	CSG	12	E	P		PUMP 25 SPACER,400 SXLEAD 12.1# 2.21 YLD,1040 SX TAIL 1.31YLD #14.3,DISP 134BBLs FINALLIFT 2530,BUMPPLUG FLOATS HELD,20 BBL CEMENT BACK

## 1 General

### 1.1 Customer Information

Company	US ROCKIES REGION
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	NBU 922-3604BS GREEN	Wellbore No.	OH
Well Name	NBU 922-3604BS	Wellbore Name	NBU 922-3604BS
Report No.	1	Report Date	1/8/2012
Project	UTAH-UINTAH	Site	NBU 922-360 PAD
Rig Name/No.		Event	COMPLETION
Start Date	1/9/2012	End Date	
Spud Date	10/25/2011	Active Datum	RKB @4,982.00usft (above Mean Sea Level)
UWI	SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0		

### 1.3 General

Contractor	CASED HOLE SOLUTIONS	Job Method	PERFORATE	Supervisor	ED GUDAC
Perforated Assembly	PRODUCTION CASING	Conveyed Method	WIRELINE		

### 1.4 Initial Conditions

Fluid Type		Fluid Density	
Surface Press		Estimate Res Press	
TVD Fluid Top		Fluid Head	
Hydrostatic Press		Press Difference	
Balance Cond	NEUTRAL		

### 1.5 Summary

Gross Interval	5,670.0 (usft)-8,514.0 (usft)	Start Date/Time	1/16/2012 12:00AM
No. of Intervals	32	End Date/Time	1/16/2012 12:00AM
Total Shots	192	Net Perforation Interval	56.00 (usft)
Avg Shot Density	3.43 (shot/ft)	Final Surface Pressure	
		Final Press Date	

## 2 Intervals

### 2.1 Perforated Interval

Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
1/16/2012 12:00AM	WASATCH/			5,670.0	5,672.0	4.00		0.360	EXP/	3.375	90.00			23.00 PRODUCTION	



## 2.1 Perforated Interval (Continued)

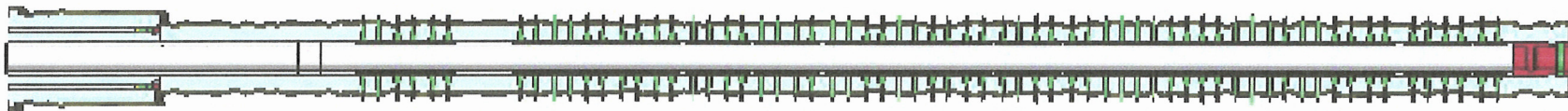
Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
1/16/2012 12:00AM	WASATCH/			5,736.0	5,738.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	WASATCH/			5,805.0	5,807.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			6,882.0	6,884.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			6,926.0	6,928.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			6,963.0	6,965.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,030.0	7,031.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,087.0	7,088.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,199.0	7,201.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,246.0	7,248.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,321.0	7,324.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,369.0	7,370.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,480.0	7,482.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,516.0	7,518.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,549.0	7,550.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,581.0	7,584.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,642.0	7,644.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,736.0	7,738.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,762.0	7,764.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,860.0	7,861.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,904.0	7,906.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,920.0	7,922.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	

## 2.1 Perforated Interval (Continued)

Date	Formation/ Reservoir	CCL@ (usft)	CCL-T S (usft)	MD Top (usft)	MD Base (usft)	Shot Density (shot/ft)	Misfires/ Add. Shot	Diamete r (in)	Carr Type /Carr Manuf	Carr Size (in)	Phasing (°)	Charge Desc /Charge Manufacturer	Charge Weight (gram)	Reason	Misrun
1/16/2012 12:00AM	MESA VERDE/			7,960.0	7,961.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			7,978.0	7,979.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,007.0	8,008.0	3.00		0.360	EXP/	3.375	120.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,052.0	8,053.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,075.0	8,076.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,110.0	8,112.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,170.0	8,172.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,392.0	8,394.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,416.0	8,417.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	
1/16/2012 12:00AM	MESA VERDE/			8,511.0	8,514.0	4.00		0.360	EXP/	3.375	90.00		23.00	PRODUCTIO N	

## 3 Plots

## 3.1 Wellbore Schematic



**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-3604BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-360 PAD

Rig Name No: ROYAL WELL SERVICE/3

Event: COMPLETION

Start Date: 1/9/2012

End Date:

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
10/25/2011	-							
1/9/2012	12:00 - 14:00	2.00	COMP	33		P		FILL SURFACE CSG. MIRU B&C QUICK TEST. PSI TEST T/ 1000 PSI. HELD FOR 15 MIN LOST 17 PSI. PSI TEST T/ 3500 PSI. HELD FOR 15 MIN LOST 21 PSI. 1ST PSI TEST T/ 7000 PSI. HELD FOR 30 MIN LOST 63 PSI. NO COMMUNICATION OR MIGRATION WITH SURFACE CSG BLEED OFF PSI. MOVE T/ NEXT WELL. SWIFW
1/13/2012	11:00 - 12:30	1.50	COMP	37		P		PERF STG 1)PU 3 1/8 EXP GUN, 23 GM, .36 HOLE SIZE. 90 DEG PHASING. RIH PERF AS PER PERF DESIGN. POOH. SWIFW
1/16/2012	7:00 - 8:00	1.00	COMP	48		P		HSM
	8:00 - 18:30	10.50	COMP	36	B	P		PERF & FRAC FOLLOWING WELL AS PER DESIGN W/ 30/50 MESH SAND & SLK WTR. ALL CBP'S ARE HALIBURTON 8K CBP'S. REFER TO STIM PJR FOR FLUID, SAND AND CHEMICAL VOLUME PUM'D
								FRAC STG #1] WHP=745#, BRK DN PERFS=4,980#, @=4.1 BPM, INJ RT=52.3, INJ PSI=5,96#, INITIAL ISIP=2,673#, INITIAL FG=.75, FINAL ISIP=2,675#, FINAL FG=.76, AVERAGE RATE=50.7, AVERAGE PRESSURE=5,132#, MAX RATE=53.4, MAX PRESSURE=6,486#, NET PRESSURE INCREASE=2#, 22/24 90% CALC PERFS OPEN. X OVER TO WIRE LINE
								PERF STG #2] P/U RIH W/ HALIBURTON 8K CBP & PERF GUN, SET CBP @=8,202', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW
								FRAC STG #2] WHP=1,510#, BRK DN PERFS=5,076#, @=1.8 BPM, INJ RT=39.6, INJ PSI=5,776#, INITIAL ISIP=2,722#, INITIAL FG=.77, FINAL ISIP=2,777#, FINAL FG=.78, AVERAGE RATE=48.5, AVERAGE PRESSURE=5,659#, MAX RATE=52.9, MAX PRESSURE=6,733#, NET PRESSURE INCREASE=2#, 15/24 63% CALC PERFS OPEN. X OVER TO WIRE LINE
								PERF STG #3] P/U RIH W/ HALIBURTON 8K CBP & PERF GUN, SET CBP @=8,038', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW. SWIFN.
1/17/2012	7:00 - 7:15	0.25	COMP	48		P		HSM, SLIPS / TRIPS / FALLS

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-36O4BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-36O PAD

Rig Name No: ROYAL WELL SERVICE/3

Event: COMPLETION

Start Date: 1/9/2012

End Date:

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	7:15 - 17:30	10.25	COMP	36	B	P		<p>FRAC STG #3] WHP=1,660#, BRK DN PERFS=4,074#, @=4.6 BPM, INJ RT=50.5, INJ PSI=5,731#, INITIAL ISIP=2,422#, INITIAL FG=.74, FINAL ISIP=2,777#, FINAL FG=.78, AVERAGE RATE=48.5, AVERAGE PRESSURE=5,022#, MAX RATE=53.1, MAX PRESSURE=6,370#, NET PRESSURE INCREASE=407#, 20/24 83% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #4] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,794', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #4] WHP=2,100#, BRK DN PERFS=2,917#, @=4.6 BPM, INJ RT=48.3, INJ PSI=5,981#, INITIAL ISIP=2,288#, INITIAL FG=.74, FINAL ISIP=1,984#, FINAL FG=.70, AVERAGE RATE=49.6, AVERAGE PRESSURE=5,142#, MAX RATE=51.2, MAX PRESSURE=5,995#, NET PRESSURE INCREASE=-304#, 17/24 70% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #5] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,614', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #5] WHP=1,050#, BRK DN PERFS=6,010#, @=1.8 BPM, INJ RT=48.2, INJ PSI=5,658#, INITIAL ISIP=1,903#, INITIAL FG=.69, FINAL ISIP=2,172#, FINAL FG=.73, AVERAGE RATE=50.7, AVERAGE PRESSURE=4,562#, MAX RATE=52, MAX PRESSURE=6,640#, NET PRESSURE INCREASE=269#, 17/24 69% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #6] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,400', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW. SWFN HSM, R/D</p>
1/18/2012	7:00 - 7:15	0.25	COMP	48		P		

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-3604BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-360 PAD

Rig Name No: ROYAL WELL SERVICE/3

Event: COMPLETION

Start Date: 1/9/2012

End Date:

Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	7:15 - 7:15	0.00	COMP	36	B	P		<p>FRAC STG #6] WHP=1,400#, BRK DN PERFS=4,634#, @=4.6 BPM, INJ RT=52.4, INJ PSI=5,040#, INITIAL ISIP=2,114#, INITIAL FG=.73, FINAL ISIP=2,263#, FINAL FG=.75, AVERAGE RATE=52.1, AVERAGE PRESSURE=4,469#, MAX RATE=52.8, MAX PRESSURE=5,702#, NET PRESSURE INCREASE=149#, 23/24 94% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #7] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=7,118', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #7] WHP=1,020#, BRK DN PERFS=4,171#, @=4.5 BPM, INJ RT=36.6, INJ PSI=6,034#, INITIAL ISIP=1,894#, INITIAL FG=.71, FINAL ISIP=2,407#, FINAL FG=.78, AVERAGE RATE=48.9, AVERAGE PRESSURE=5,472#, MAX RATE=53.2, MAX PRESSURE=6,731#, NET PRESSURE INCREASE=513#, 14/24 60% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>PERF STG #8] P/U RIH W/ HALIBURTON 8K CBP &amp; PERF GUN, SET CBP @=5,837', PERF MESAVERDE USING 3-1/8 EXPEND, 23 GRM, 0.36" HOLE. AS PERSAY IN PROCEDURE, X OVER TO FRAC CREW</p> <p>FRAC STG #8] WHP=425#, BRK DN PERFS=2,012#, @=3.8 BPM, INJ RT=52.8, INJ PSI=4,139#, INITIAL ISIP=1,075#, INITIAL FG=.63, FINAL ISIP=1,483#, FINAL FG=.70, AVERAGE RATE=51.5, AVERAGE PRESSURE=3,996#, MAX RATE=52.9, MAX PRESSURE=4,925#, NET PRESSURE INCREASE=408#, 14/24 60% CALC PERFS OPEN. X OVER TO WIRE LINE</p> <p>P/U RIH W/ HALIBURTON 8K CBP, SET FOR TOP KILL @=5,620</p> <p>TOTAL FLUID PUMP'D=9,745 BBLS TOTAL SAND PUMP'D=210,672# SAFETY = JSA.</p>
1/21/2012	7:00 - 7:15	0.25	COMP	48		P		

**US ROCKIES REGION**  
**Operation Summary Report**

Well: NBU 922-3604BS GREEN

Spud Date: 10/25/2011

Project: UTAH-UINTAH

Site: NBU 922-360 PAD

Rig Name No: ROYAL WELL SERVICE/3

Event: COMPLETION

Start Date: 1/9/2012

End Date:

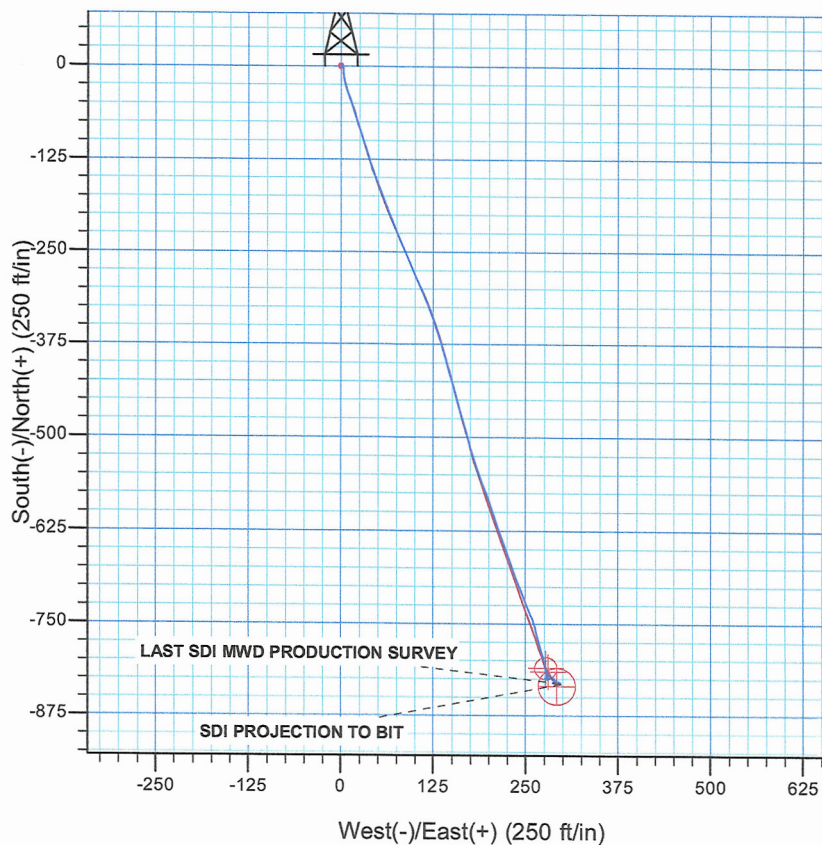
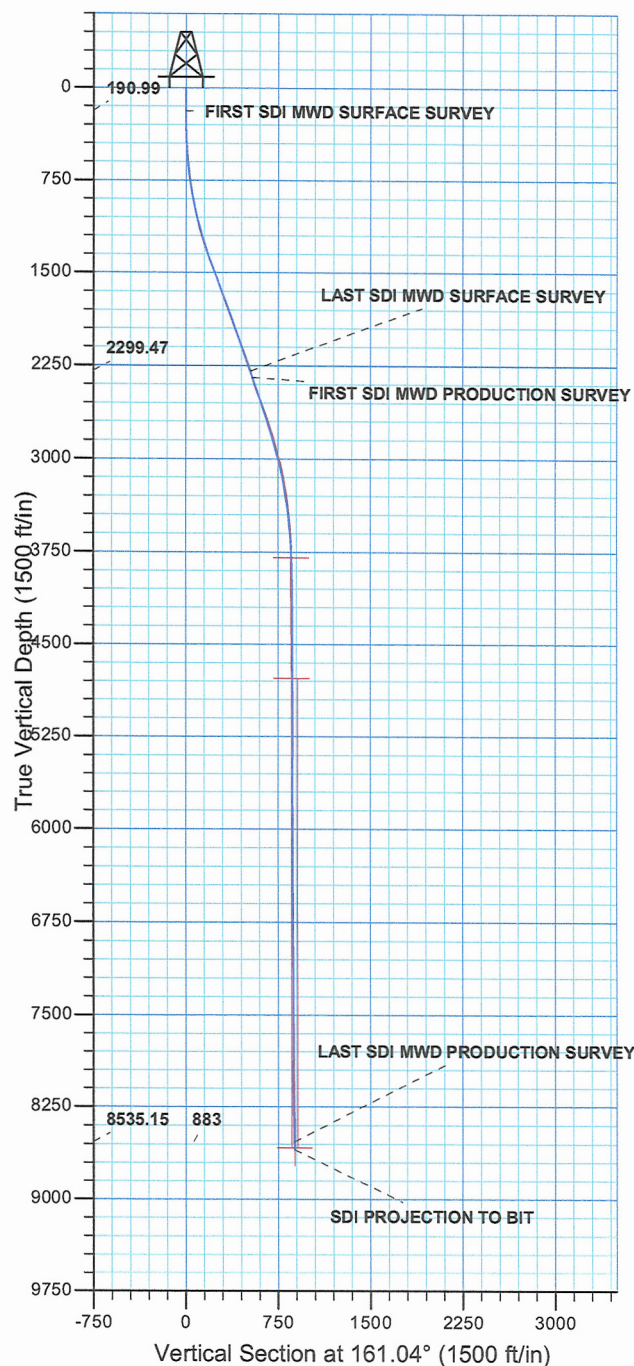
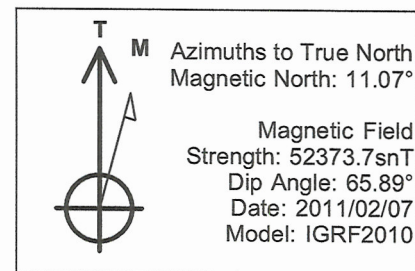
Active Datum: RKB @4,982.00usft (above Mean Sea Level)

UWI: SW/SE/0/9/S/22/E/36/0/0/26/PM/S/1250/E/0/2103/0/0

Date	Time Start-End	Duration (hr)	Phase	Code	Sub Code	P/U	MD From (usft)	Operation
	7:15 - 18:00	10.75	COMP	30		P		<p>SICP= 0#. MIRU. NDWH. NUBOP. P/U &amp; RIH W/ 177 JTS 2-3/8" L-80 4.7# TBNG + XN + POBS + 3-7/8" BIT. T/U ON FIRST CBP @ 5620'. R/U PUMP &amp; TEST BOP'S GOOD @ 3000#. P/U SWIVEL. BREAK CIRC. T/U ON KILL CBP &amp; BEGIN D/O AS FOLLOWS:</p> <p>CBP #1) DRLG OUT BAKER 8K CBP @ 5620' IN 8 MIN. 0 LBS DIFF. PSI. RIH, TAG SND @ 5819'. C/O 18' OF SND. FCP = 0 PSI.</p> <p>CBP #2) DRLG OUT BAKER 8K CBP @ 5837" IN 8 MIN. 400 LBS DIFF. PSI. RIH, TAG SND @ 7072'. C/O 46' OF SND. FCP = 30 PSI.</p> <p>CBP #3) DRLG OUT BAKER 8K CBP @ 7118' IN 12 MIN. 400 LBS DIFF. PSI. RIH, TAG SND @ 7383'. C/O 17' OF SND. FCP = 140 PSI.</p> <p>CBP #4) DRLG OUT BAKER 8K CBP @ 7400' IN 8 MIN. 200 LBS DIFF. PSI. RIH, TAG SND @ 7595'. C/O 19' OF SND. FCP = 400 PSI.</p> <p>CBP #5) DRLG OUT BAKER 8K CBP @ 7614' IN 7 MIN. 100 LBS DIFF. PSI. RIH, TAG SND @ 7774'. C/O 20' OF SND. FCP = 490 PSI.</p> <p>CBP #6) DRLG OUT BAKER 8K CBP @ 7794' IN 7 MIN. 200 LBS DIFF. PSI. RIH, TAG SND @ 8021'. C/O 17' OF SND. FCP = 560 PSI.</p> <p>CBP #7) DRLG OUT BAKER 8K CBP @ 8038' IN 5 MIN. 100 LBS DIFF. PSI. RIH, TAG SND @ 8173'. C/O 29' OF SND. FCP = 560 PSI.</p> <p>CBP #8) DRLG OUT BAKER 8K CBP @ 8202' IN 7 MIN. 300 LBS DIFF. PSI. RIH, TAG SND @ 8375'. C/O TO 8631' W/ 272 JTS + BHA. FCP = 650 PSI.</p> <p>L/D 20 JTS TBNG. LAND WELL AS FOLLOWS:</p> <p>KB=14 HANGER=.83' 252 JTS. 2-3/8" N-80 4.7# TBNG =7992.61' XN = 1.34' POBS = 1.68' EOT @ 8010.46'</p> <p>NDBOP. NUWH. TEST FLOW LINES ( GOOD ) @ 2500 PSI. DROP BALL &amp; PUMP OFF BIT. RDMO. WELL TURNED OVER TO FB CREW @ 1700 W/ CP= 2125#. TP= 1450#. TWLTR = 8145 BBLs WELL IP'D ON 1/24/12 - 2720 MCFD, 0 BOPD, 510 BWPD, CP 1720 #, FTP 1383#, CK 20/64", LP 70#, 24 HRS</p>
1/24/2012	7:00 -		PROD	50				



WELL DETAILS: NBU 922-3604BS					
GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14526025.01	2092599.82	39° 59' 19.331 N	109° 23' 8.520 W



PROJECT DETAILS: Uintah County, UT UTM12	
Geodetic System:	Universal Transverse Mercator (US Survey Feet)
Datum:	NAD 1927 - Western US
Ellipsoid:	Clarke 1866
Zone:	Zone 12N (114 W to 108 W)
Location:	SECTION 36 T9S R22E
System Datum:	Mean Sea Level



**Scientific Drilling**  
Rocky Mountain Operations

# **Kerr McGee Oil and Gas Onshore LP**

Uintah County, UT UTM12  
NBU 922-36O PAD  
NBU 922-36O4BS

OH

Design: OH

## **Standard Survey Report**

03 January, 2012

**Anadarko**  
Petroleum Corporation

<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	Uintah County, UT UTM12		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	NBU 922-36O PAD, SECTION 36 T9S R22E		
<b>Site Position:</b>		<b>Northing:</b>	14,526,021.20 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,092,590.64 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 59' 19.295 N
		<b>Longitude:</b>	109° 23' 8.639 W
		<b>Grid Convergence:</b>	1.04 °

<b>Well</b>	NBU 922-36O4BS, 1250 FSL 2103 FEL		
<b>Well Position</b>	+N/-S 0.00 ft	<b>Northing:</b>	14,526,025.01 usft
	+E/-W 0.00 ft	<b>Easting:</b>	2,092,599.82 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	39° 59' 19.331 N
		<b>Longitude:</b>	109° 23' 8.520 W
		<b>Ground Level:</b>	4,968.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2011/02/07	11.07	65.89	52,374

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	161.04	

<b>Survey Program</b>	<b>Date</b>	2012/01/03			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
10.00	2,380.00	Survey #1 SDI MWD SURFACE (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,432.00	8,720.00	Survey #2 SDI MWD PRODUCTION (OH)	MWD SDI	MWD - Standard ver 1.0.1	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
191.00	0.88	46.31	190.99	0.96	1.01	-0.58	0.49	0.49	0.00
<b>FIRST SDI MWD SURFACE SURVEY</b>									
276.00	0.70	117.15	275.99	1.17	1.94	-0.48	1.09	-0.21	83.34
360.00	1.85	168.57	359.97	-0.39	2.66	1.23	1.80	1.37	61.21
450.00	3.52	178.77	449.86	-4.58	3.01	5.31	1.92	1.86	11.33
540.00	5.06	175.55	539.61	-11.30	3.38	11.78	1.73	1.71	-3.58
630.00	6.26	169.31	629.17	-20.07	4.60	20.48	1.50	1.33	-6.93
720.00	7.75	162.73	718.50	-30.69	7.31	31.40	1.88	1.66	-7.31

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 922-360 PAD  
**Well:** NBU 922-3604BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 922-3604BS  
**TVD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**MD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
810.00	9.27	158.68	807.51	-43.24	11.75	44.71	1.81	1.69	-4.50
900.00	10.82	162.23	896.12	-58.04	16.96	60.40	1.85	1.72	3.94
990.00	12.40	162.38	984.28	-75.29	22.46	78.51	1.76	1.76	0.17
1,080.00	13.65	161.98	1,071.96	-94.60	28.67	98.79	1.39	1.39	-0.44
1,170.00	14.79	162.95	1,159.20	-115.68	35.33	120.89	1.29	1.27	1.08
1,260.00	16.47	161.81	1,245.87	-138.79	42.68	145.13	1.90	1.87	-1.27
1,350.00	19.05	159.25	1,331.58	-164.65	51.87	172.57	2.99	2.87	-2.84
1,440.00	20.51	157.80	1,416.27	-192.98	63.03	202.99	1.71	1.62	-1.61
1,530.00	20.62	157.53	1,500.53	-222.23	75.04	234.55	0.16	0.12	-0.30
1,620.00	21.80	156.41	1,584.43	-252.19	87.79	267.03	1.39	1.31	-1.24
1,710.00	20.66	156.55	1,668.32	-282.07	100.80	299.51	1.27	-1.27	0.16
1,800.00	19.06	156.58	1,752.97	-310.12	112.95	330.00	1.78	-1.78	0.03
1,890.00	19.99	159.95	1,837.79	-338.06	124.07	360.03	1.62	1.03	3.74
1,980.00	19.69	163.69	1,922.46	-367.06	133.60	390.56	1.45	-0.33	4.16
2,070.00	20.41	163.65	2,007.00	-396.67	142.28	421.38	0.80	0.80	-0.04
2,160.00	18.99	165.03	2,091.73	-425.88	150.48	451.67	1.66	-1.58	1.53
2,250.00	18.89	163.69	2,176.86	-454.01	158.35	480.83	0.50	-0.11	-1.49
2,380.00	19.93	164.42	2,299.47	-495.55	170.21	523.97	0.82	0.80	0.56
<b>LAST SDI MWD SURFACE SURVEY</b>									
2,432.00	19.81	163.61	2,348.40	-512.46	175.06	541.53	0.81	-0.62	-1.56
<b>FIRST SDI MWD PRODUCTION SURVEY</b>									
2,522.00	19.17	161.31	2,433.30	-540.94	184.05	571.40	0.98	-0.49	-2.56
2,613.00	18.66	158.45	2,519.39	-568.64	194.19	600.88	1.16	-0.56	-3.14
2,704.00	18.04	161.57	2,605.76	-595.55	203.99	629.51	1.28	-0.68	3.43
2,794.00	18.48	160.32	2,691.23	-622.20	213.20	657.71	0.65	0.49	-1.39
2,885.00	18.11	159.68	2,777.63	-649.04	222.97	686.27	0.46	-0.41	-0.70
2,975.00	17.74	161.11	2,863.26	-675.13	232.27	713.97	0.64	-0.41	1.59
3,066.00	15.08	157.64	2,950.55	-699.20	241.26	739.65	3.11	-2.92	-3.81
3,156.00	12.65	158.61	3,037.92	-719.21	249.31	761.19	2.71	-2.70	1.08
3,247.00	11.87	158.51	3,126.84	-737.20	256.37	780.50	0.86	-0.86	-0.11
3,337.00	9.67	163.02	3,215.26	-753.04	261.97	797.30	2.82	-2.44	5.01
3,428.00	8.40	164.30	3,305.12	-766.75	266.00	811.57	1.41	-1.40	1.41
3,518.00	7.86	165.72	3,394.22	-779.04	269.30	824.27	0.64	-0.60	1.58
3,609.00	6.13	166.51	3,484.54	-789.80	271.97	835.31	1.90	-1.90	0.87
3,699.00	5.02	162.23	3,574.11	-798.22	274.29	844.03	1.32	-1.23	-4.76
3,790.00	4.30	164.12	3,664.81	-805.29	276.44	851.42	0.81	-0.79	2.08
3,880.00	2.68	172.22	3,754.64	-810.62	277.65	856.85	1.88	-1.80	9.00
3,971.00	1.82	177.57	3,845.57	-814.17	278.00	860.32	0.97	-0.95	5.88
4,061.00	0.98	150.02	3,935.54	-816.27	278.44	862.45	1.17	-0.93	-30.61
4,152.00	0.73	163.48	4,026.53	-817.50	278.99	863.79	0.35	-0.27	14.79
4,242.00	0.44	155.99	4,116.53	-818.36	279.30	864.71	0.33	-0.32	-8.32
4,333.00	0.77	170.90	4,207.52	-819.29	279.54	865.66	0.40	0.36	16.38
4,423.00	0.67	210.16	4,297.52	-820.34	279.37	866.60	0.55	-0.11	43.62

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 922-360 PAD  
**Well:** NBU 922-3604BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 922-3604BS  
**TVD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**MD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,514.00	1.06	195.77	4,388.51	-821.61	278.87	867.64	0.49	0.43	-15.81
4,605.00	0.27	45.23	4,479.50	-822.27	278.80	868.24	1.43	-0.87	-165.43
4,695.00	0.62	34.17	4,569.50	-821.72	279.22	867.86	0.40	0.39	-12.29
4,785.00	0.25	138.70	4,659.50	-821.46	279.62	867.74	0.80	-0.41	116.14
4,876.00	0.37	128.68	4,750.50	-821.79	279.98	868.18	0.14	0.13	-11.01
4,967.00	0.61	171.70	4,841.49	-822.46	280.28	868.90	0.46	0.26	47.27
5,057.00	0.62	179.89	4,931.49	-823.42	280.35	869.83	0.10	0.01	9.10
5,148.00	0.62	189.98	5,022.48	-824.39	280.27	870.73	0.12	0.00	11.09
5,238.00	0.85	169.90	5,112.48	-825.53	280.30	871.81	0.38	0.26	-22.31
5,329.00	0.91	290.11	5,203.47	-825.95	279.74	872.03	1.68	0.07	132.10
5,419.00	0.82	295.66	5,293.46	-825.42	278.49	871.12	0.14	-0.10	6.17
5,510.00	0.70	280.18	5,384.45	-825.04	277.36	870.40	0.26	-0.13	-17.01
5,601.00	1.32	16.60	5,475.44	-823.94	277.11	869.27	1.72	0.68	105.96
5,691.00	1.32	22.04	5,565.42	-821.99	277.79	867.65	0.14	0.00	6.04
5,782.00	0.54	19.62	5,656.41	-820.61	278.33	866.52	0.86	-0.86	-2.66
5,872.00	0.27	55.79	5,746.40	-820.09	278.65	866.13	0.40	-0.30	40.19
5,963.00	0.18	72.88	5,837.40	-819.93	278.96	866.08	0.12	-0.10	18.78
6,053.00	0.35	60.28	5,927.40	-819.75	279.34	866.03	0.20	0.19	-14.00
6,144.00	0.63	128.28	6,018.40	-819.92	279.97	866.40	0.65	0.31	74.73
6,234.00	0.88	138.24	6,108.39	-820.74	280.82	867.46	0.31	0.28	11.07
6,325.00	0.17	113.38	6,199.39	-821.32	281.41	868.19	0.80	-0.78	-27.32
6,415.00	0.79	47.62	6,289.38	-820.95	281.99	868.03	0.82	0.69	-73.07
6,506.00	0.42	141.54	6,380.38	-820.79	282.66	868.10	1.01	-0.41	103.21
6,596.00	0.79	119.53	6,470.37	-821.36	283.40	868.87	0.48	0.41	-24.46
6,687.00	0.61	108.67	6,561.37	-821.82	284.41	869.64	0.24	-0.20	-11.93
6,778.00	0.88	137.05	6,652.36	-822.49	285.34	870.57	0.49	0.30	31.19
6,868.00	0.76	132.81	6,742.35	-823.40	286.25	871.73	0.15	-0.13	-4.71
6,959.00	1.16	109.70	6,833.34	-824.12	287.56	872.84	0.60	0.44	-25.40
7,049.00	0.97	128.92	6,923.32	-824.91	289.01	874.05	0.45	-0.21	21.36
7,139.00	0.59	267.63	7,013.32	-825.40	289.14	874.57	1.63	-0.42	154.12
7,230.00	0.34	211.86	7,104.32	-825.65	288.53	874.60	0.54	-0.27	-61.29
7,320.00	1.23	191.30	7,194.31	-826.83	288.20	875.61	1.02	0.99	-22.84
7,411.00	1.44	180.94	7,285.28	-828.93	287.99	877.52	0.35	0.23	-11.38
7,501.00	0.70	204.44	7,375.27	-830.56	287.75	878.99	0.94	-0.82	26.11
7,592.00	0.83	357.76	7,466.26	-830.41	287.49	878.76	1.64	0.14	168.48
7,682.00	0.49	6.95	7,556.26	-829.37	287.51	877.79	0.39	-0.38	10.21
7,773.00	0.83	63.74	7,647.25	-828.69	288.15	877.36	0.76	0.37	62.41
7,863.00	0.28	7.27	7,737.25	-828.19	288.76	877.08	0.79	-0.61	-62.74
7,953.00	0.19	244.19	7,827.25	-828.03	288.66	876.90	0.46	-0.10	-136.76
8,044.00	0.37	3.43	7,918.25	-827.81	288.54	876.64	0.54	0.20	131.03
8,134.00	0.26	56.32	8,008.25	-827.40	288.72	876.32	0.33	-0.12	58.77
8,225.00	0.71	93.85	8,099.24	-827.33	289.46	876.49	0.58	0.49	41.24
8,315.00	1.00	118.76	8,189.23	-827.74	290.70	877.29	0.52	0.32	27.68
8,406.00	1.23	100.71	8,280.22	-828.31	292.36	878.36	0.46	0.25	-19.84



**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 922-360 PAD  
**Well:** NBU 922-3604BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 922-3604BS  
**TVD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**MD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,496.00	1.43	113.42	8,370.19	-828.93	294.34	879.59	0.39	0.22	14.12
8,587.00	1.42	124.07	8,461.16	-830.02	296.32	881.26	0.29	-0.01	11.70
8,661.00	1.19	144.56	8,535.15	-831.15	297.52	882.73	0.70	-0.31	27.69
<b>LAST SDI MWD PRODUCTION SURVEY</b>									
8,720.00	1.19	144.56	8,594.13	-832.15	298.23	883.90	0.00	0.00	0.00
<b>SDI PROJECTION TO BIT</b>									

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
191.00	190.99	0.96	1.01	FIRST SDI MWD SURFACE SURVEY
2,380.00	2,299.47	-495.55	170.21	LAST SDI MWD SURFACE SURVEY

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_





**Scientific Drilling**  
Rocky Mountain Operations

# **Kerr McGee Oil and Gas Onshore LP**

Uintah County, UT UTM12  
NBU 922-36O PAD  
NBU 922-36O4BS

OH

Design: OH

## **Survey Report - Geographic**

03 January, 2012

**Anadarko**  
Petroleum Corporation

<b>Company:</b>	Kerr McGee Oil and Gas Onshore LP	<b>Local Co-ordinate Reference:</b>	Well NBU 922-36O4BS
<b>Project:</b>	Uintah County, UT UTM12	<b>TVD Reference:</b>	GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)
<b>Site:</b>	NBU 922-36O PAD	<b>MD Reference:</b>	GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)
<b>Well:</b>	NBU 922-36O4BS	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM5000-RobertS-Local

<b>Project</b>	Uintah County, UT UTM12		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	NBU 922-36O PAD, SECTION 36 T9S R22E		
<b>Site Position:</b>		<b>Northing:</b>	14,526,021.20 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,092,590.64 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	39° 59' 19.295 N
		<b>Longitude:</b>	109° 23' 8.639 W
		<b>Grid Convergence:</b>	1.04 °

<b>Well</b>	NBU 922-36O4BS, 1250 FSL 2103 FEL		
<b>Well Position</b>	+N/-S 0.00 ft	<b>Northing:</b>	14,526,025.01 usft
	+E/-W 0.00 ft	<b>Easting:</b>	2,092,599.82 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	39° 59' 19.331 N
		<b>Longitude:</b>	109° 23' 8.520 W
		<b>Ground Level:</b>	4,968.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	IGRF2010	2011/02/07	11.07	65.89	52,374

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	161.04	

<b>Survey Program</b>	<b>Date</b>	2012/01/03			
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
(ft)	(ft)				
10.00	2,380.00	Survey #1 SDI MWD SURFACE (OH)	MWD SDI	MWD - Standard ver 1.0.1	
2,432.00	8,720.00	Survey #2 SDI MWD PRODUCTION (OH)	MWD SDI	MWD - Standard ver 1.0.1	

<b>Survey</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Map</b>	<b>Map</b>	<b>Latitude</b>	<b>Longitude</b>	
<b>Depth</b>	(°)	(°)	<b>Depth</b>	(ft)	(ft)	<b>Northing</b>	<b>Easting</b>			
(ft)			(ft)			(usft)	(usft)			
0.00	0.00	0.00	0.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W	
10.00	0.00	0.00	10.00	0.00	0.00	14,526,025.01	2,092,599.82	39° 59' 19.331 N	109° 23' 8.520 W	
191.00	0.88	46.31	190.99	0.96	1.01	14,526,025.99	2,092,600.81	39° 59' 19.340 N	109° 23' 8.507 W	
<b>FIRST SDI MWD SURFACE SURVEY</b>										
276.00	0.70	117.15	275.99	1.17	1.94	14,526,026.22	2,092,601.74	39° 59' 19.342 N	109° 23' 8.495 W	
360.00	1.85	168.57	359.97	-0.39	2.66	14,526,024.67	2,092,602.49	39° 59' 19.327 N	109° 23' 8.486 W	
450.00	3.52	178.77	449.86	-4.58	3.01	14,526,020.49	2,092,602.91	39° 59' 19.286 N	109° 23' 8.481 W	
540.00	5.06	175.55	539.61	-11.30	3.38	14,526,013.78	2,092,603.40	39° 59' 19.219 N	109° 23' 8.477 W	
630.00	6.26	169.31	629.17	-20.07	4.60	14,526,005.02	2,092,604.78	39° 59' 19.132 N	109° 23' 8.461 W	
720.00	7.75	162.73	718.50	-30.69	7.31	14,525,994.46	2,092,607.68	39° 59' 19.027 N	109° 23' 8.426 W	
810.00	9.27	158.68	807.51	-43.24	11.75	14,525,981.99	2,092,612.35	39° 59' 18.903 N	109° 23' 8.369 W	

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 922-360 PAD  
**Well:** NBU 922-3604BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 922-3604BS  
**TVD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**MD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
900.00	10.82	162.23	896.12	-58.04	16.96	14,525,967.29	2,092,617.83	39° 59' 18.757 N	109° 23' 8.302 W
990.00	12.40	162.38	984.28	-75.29	22.46	14,525,950.14	2,092,623.64	39° 59' 18.587 N	109° 23' 8.231 W
1,080.00	13.65	161.98	1,071.96	-94.60	28.67	14,525,930.94	2,092,630.20	39° 59' 18.396 N	109° 23' 8.152 W
1,170.00	14.79	162.95	1,159.20	-115.68	35.33	14,525,909.99	2,092,637.24	39° 59' 18.187 N	109° 23' 8.066 W
1,260.00	16.47	161.81	1,245.87	-138.79	42.68	14,525,887.02	2,092,645.01	39° 59' 17.959 N	109° 23' 7.972 W
1,350.00	19.05	159.25	1,331.58	-164.65	51.87	14,525,861.33	2,092,654.66	39° 59' 17.703 N	109° 23' 7.854 W
1,440.00	20.51	157.80	1,416.27	-192.98	63.03	14,525,833.20	2,092,666.33	39° 59' 17.423 N	109° 23' 7.710 W
1,530.00	20.62	157.53	1,500.53	-222.23	75.04	14,525,804.18	2,092,678.88	39° 59' 17.134 N	109° 23' 7.556 W
1,620.00	21.80	156.41	1,584.43	-252.19	87.79	14,525,774.46	2,092,692.16	39° 59' 16.838 N	109° 23' 7.392 W
1,710.00	20.66	156.55	1,668.32	-282.07	100.80	14,525,744.81	2,092,705.71	39° 59' 16.543 N	109° 23' 7.225 W
1,800.00	19.06	156.58	1,752.97	-310.12	112.95	14,525,716.99	2,092,718.37	39° 59' 16.266 N	109° 23' 7.069 W
1,890.00	19.99	159.95	1,837.79	-338.06	124.07	14,525,689.26	2,092,729.99	39° 59' 15.989 N	109° 23' 6.926 W
1,980.00	19.69	163.69	1,922.46	-367.06	133.60	14,525,660.43	2,092,740.05	39° 59' 15.703 N	109° 23' 6.803 W
2,070.00	20.41	163.65	2,007.00	-396.67	142.28	14,525,630.98	2,092,749.26	39° 59' 15.410 N	109° 23' 6.692 W
2,160.00	18.99	165.03	2,091.73	-425.88	150.48	14,525,601.93	2,092,757.99	39° 59' 15.121 N	109° 23' 6.586 W
2,250.00	18.89	163.69	2,176.86	-454.01	158.35	14,525,573.95	2,092,766.37	39° 59' 14.843 N	109° 23' 6.485 W
2,380.00	19.93	164.42	2,299.47	-495.55	170.21	14,525,532.63	2,092,778.98	39° 59' 14.433 N	109° 23' 6.333 W
LAST SDI MWD SURFACE SURVEY									
2,432.00	19.61	163.61	2,348.40	-512.46	175.06	14,525,515.81	2,092,784.13	39° 59' 14.266 N	109° 23' 6.271 W
FIRST SDI MWD PRODUCTION SURVEY									
2,522.00	19.17	161.31	2,433.30	-540.94	184.05	14,525,487.49	2,092,793.64	39° 59' 13.984 N	109° 23' 6.155 W
2,613.00	18.66	158.45	2,519.39	-568.64	194.19	14,525,459.98	2,092,804.27	39° 59' 13.710 N	109° 23' 6.025 W
2,704.00	18.04	161.57	2,605.76	-595.55	203.99	14,525,433.26	2,092,814.56	39° 59' 13.444 N	109° 23' 5.899 W
2,794.00	18.48	160.32	2,691.23	-622.20	213.20	14,525,406.78	2,092,824.25	39° 59' 13.181 N	109° 23' 5.781 W
2,885.00	18.11	159.68	2,777.63	-649.04	222.97	14,525,380.12	2,092,834.51	39° 59' 12.916 N	109° 23' 5.655 W
2,975.00	17.74	161.11	2,863.26	-675.13	232.27	14,525,354.20	2,092,844.27	39° 59' 12.658 N	109° 23' 5.536 W
3,066.00	15.08	157.64	2,950.55	-699.20	241.26	14,525,330.29	2,092,853.70	39° 59' 12.420 N	109° 23' 5.420 W
3,156.00	12.65	158.61	3,037.92	-719.21	249.31	14,525,310.44	2,092,862.11	39° 59' 12.222 N	109° 23' 5.317 W
3,247.00	11.87	158.51	3,126.84	-737.20	256.37	14,525,292.58	2,092,869.50	39° 59' 12.044 N	109° 23' 5.226 W
3,337.00	9.67	163.02	3,215.26	-753.04	261.97	14,525,276.84	2,092,875.38	39° 59' 11.888 N	109° 23' 5.154 W
3,428.00	8.40	164.30	3,305.12	-766.75	266.00	14,525,263.21	2,092,879.66	39° 59' 11.752 N	109° 23' 5.102 W
3,518.00	7.86	165.72	3,394.22	-779.04	269.30	14,525,250.98	2,092,883.18	39° 59' 11.631 N	109° 23' 5.060 W
3,609.00	6.13	166.51	3,484.54	-789.80	271.97	14,525,240.27	2,092,886.04	39° 59' 11.524 N	109° 23' 5.026 W
3,699.00	5.02	162.23	3,574.11	-798.22	274.29	14,525,231.89	2,092,888.52	39° 59' 11.441 N	109° 23' 4.996 W
3,790.00	4.30	164.12	3,664.81	-805.29	276.44	14,525,224.86	2,092,890.80	39° 59' 11.371 N	109° 23' 4.968 W
3,880.00	2.68	172.22	3,754.64	-810.62	277.65	14,525,219.55	2,092,892.10	39° 59' 11.318 N	109° 23' 4.953 W
3,971.00	1.82	177.57	3,845.57	-814.17	278.00	14,525,216.01	2,092,892.51	39° 59' 11.283 N	109° 23' 4.948 W
4,061.00	0.98	150.02	3,935.54	-816.27	278.44	14,525,213.92	2,092,893.00	39° 59' 11.263 N	109° 23' 4.942 W
4,152.00	0.73	163.48	4,026.53	-817.50	278.99	14,525,212.70	2,092,893.57	39° 59' 11.251 N	109° 23' 4.935 W
4,242.00	0.44	155.99	4,116.53	-818.36	279.30	14,525,211.84	2,092,893.89	39° 59' 11.242 N	109° 23' 4.931 W
4,333.00	0.77	170.90	4,207.52	-819.29	279.54	14,525,210.92	2,092,894.15	39° 59' 11.233 N	109° 23' 4.928 W
4,423.00	0.67	210.16	4,297.52	-820.34	279.37	14,525,209.87	2,092,894.00	39° 59' 11.222 N	109° 23' 4.930 W
4,514.00	1.06	195.77	4,388.51	-821.61	278.87	14,525,208.59	2,092,893.52	39° 59' 11.210 N	109° 23' 4.937 W
4,605.00	0.27	45.23	4,479.50	-822.27	278.80	14,525,207.93	2,092,893.46	39° 59' 11.203 N	109° 23' 4.938 W
4,695.00	0.62	34.17	4,569.50	-821.72	279.22	14,525,208.49	2,092,893.87	39° 59' 11.209 N	109° 23' 4.932 W
4,785.00	0.25	138.70	4,659.50	-821.46	279.62	14,525,208.75	2,092,894.27	39° 59' 11.211 N	109° 23' 4.927 W
4,876.00	0.37	128.68	4,750.50	-821.79	279.98	14,525,208.43	2,092,894.64	39° 59' 11.208 N	109° 23' 4.923 W
4,967.00	0.61	171.70	4,841.49	-822.46	280.28	14,525,207.77	2,092,894.95	39° 59' 11.201 N	109° 23' 4.919 W
5,057.00	0.62	179.89	4,931.49	-823.42	280.35	14,525,206.81	2,092,895.04	39° 59' 11.192 N	109° 23' 4.918 W
5,148.00	0.62	189.98	5,022.48	-824.39	280.27	14,525,205.83	2,092,894.97	39° 59' 11.182 N	109° 23' 4.919 W
5,238.00	0.85	169.90	5,112.48	-825.53	280.30	14,525,204.69	2,092,895.02	39° 59' 11.171 N	109° 23' 4.918 W
5,329.00	0.91	290.11	5,203.47	-825.95	279.74	14,525,204.27	2,092,894.47	39° 59' 11.167 N	109° 23' 4.926 W
5,419.00	0.82	295.66	5,293.46	-825.42	278.49	14,525,204.77	2,092,893.21	39° 59' 11.172 N	109° 23' 4.942 W
5,510.00	0.70	280.18	5,384.45	-825.04	277.36	14,525,205.13	2,092,892.07	39° 59' 11.176 N	109° 23' 4.956 W
5,601.00	1.32	16.60	5,475.44	-823.94	277.11	14,525,206.23	2,092,891.80	39° 59' 11.187 N	109° 23' 4.959 W

**Company:** Kerr McGee Oil and Gas Onshore LP  
**Project:** Uintah County, UT UTM12  
**Site:** NBU 922-360 PAD  
**Well:** NBU 922-3604BS  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well NBU 922-3604BS  
**TVD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**MD Reference:** GL 4968 & KB 14 @ 4982.00ft (ENSIGN 139)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM5000-RobertS-Local

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,691.00	1.32	22.04	5,565.42	-821.99	277.79	14,525,208.19	2,092,892.45	39° 59' 11.206 N	109° 23' 4.951 W	
5,782.00	0.54	19.62	5,656.41	-820.61	278.33	14,525,209.58	2,092,892.96	39° 59' 11.220 N	109° 23' 4.944 W	
5,872.00	0.27	55.79	5,746.40	-820.09	278.65	14,525,210.10	2,092,893.27	39° 59' 11.225 N	109° 23' 4.940 W	
5,963.00	0.18	72.88	5,837.40	-819.93	278.96	14,525,210.27	2,092,893.58	39° 59' 11.226 N	109° 23' 4.936 W	
6,053.00	0.35	60.28	5,927.40	-819.75	279.34	14,525,210.46	2,092,893.95	39° 59' 11.228 N	109° 23' 4.931 W	
6,144.00	0.63	128.28	6,018.40	-819.92	279.97	14,525,210.30	2,092,894.59	39° 59' 11.227 N	109° 23' 4.923 W	
6,234.00	0.88	138.24	6,108.39	-820.74	280.82	14,525,209.49	2,092,895.45	39° 59' 11.218 N	109° 23' 4.912 W	
6,325.00	0.17	113.38	6,199.39	-821.32	281.41	14,525,208.92	2,092,896.05	39° 59' 11.213 N	109° 23' 4.904 W	
6,415.00	0.79	47.62	6,289.38	-820.95	281.99	14,525,209.30	2,092,896.63	39° 59' 11.216 N	109° 23' 4.897 W	
6,506.00	0.42	141.54	6,380.38	-820.79	282.66	14,525,209.47	2,092,897.30	39° 59' 11.218 N	109° 23' 4.888 W	
6,596.00	0.79	119.53	6,470.37	-821.36	283.40	14,525,208.92	2,092,898.05	39° 59' 11.212 N	109° 23' 4.879 W	
6,687.00	0.61	108.67	6,561.37	-821.82	284.41	14,525,208.48	2,092,899.06	39° 59' 11.208 N	109° 23' 4.866 W	
6,778.00	0.88	137.05	6,652.36	-822.49	285.34	14,525,207.83	2,092,900.01	39° 59' 11.201 N	109° 23' 4.854 W	
6,868.00	0.76	132.81	6,742.35	-823.40	286.25	14,525,206.93	2,092,900.94	39° 59' 11.192 N	109° 23' 4.842 W	
6,959.00	1.16	109.70	6,833.34	-824.12	287.56	14,525,206.24	2,092,902.26	39° 59' 11.185 N	109° 23' 4.825 W	
7,049.00	0.97	128.92	6,923.32	-824.91	289.01	14,525,205.48	2,092,903.72	39° 59' 11.177 N	109° 23' 4.806 W	
7,139.00	0.59	267.63	7,013.32	-825.40	289.14	14,525,204.98	2,092,903.86	39° 59' 11.172 N	109° 23' 4.805 W	
7,230.00	0.34	211.86	7,104.32	-825.65	288.53	14,525,204.72	2,092,903.26	39° 59' 11.170 N	109° 23' 4.813 W	
7,320.00	1.23	191.30	7,194.31	-826.83	288.20	14,525,203.54	2,092,902.95	39° 59' 11.158 N	109° 23' 4.817 W	
7,411.00	1.44	180.94	7,285.28	-828.93	287.99	14,525,201.44	2,092,902.78	39° 59' 11.138 N	109° 23' 4.820 W	
7,501.00	0.70	204.44	7,375.27	-830.56	287.75	14,525,199.80	2,092,902.56	39° 59' 11.121 N	109° 23' 4.823 W	
7,592.00	0.83	357.76	7,466.26	-830.41	287.49	14,525,199.95	2,092,902.30	39° 59' 11.123 N	109° 23' 4.826 W	
7,682.00	0.49	6.95	7,556.26	-829.37	287.51	14,525,200.98	2,092,902.30	39° 59' 11.133 N	109° 23' 4.826 W	
7,773.00	0.83	63.74	7,647.25	-828.69	288.15	14,525,201.67	2,092,902.93	39° 59' 11.140 N	109° 23' 4.818 W	
7,863.00	0.28	7.27	7,737.25	-828.19	288.76	14,525,202.19	2,092,903.53	39° 59' 11.145 N	109° 23' 4.810 W	
7,953.00	0.19	244.19	7,827.25	-828.03	288.66	14,525,202.34	2,092,903.42	39° 59' 11.146 N	109° 23' 4.811 W	
8,044.00	0.37	3.43	7,918.25	-827.81	288.54	14,525,202.57	2,092,903.30	39° 59' 11.149 N	109° 23' 4.813 W	
8,134.00	0.26	56.32	8,008.25	-827.40	288.72	14,525,202.97	2,092,903.48	39° 59' 11.153 N	109° 23' 4.810 W	
8,225.00	0.71	93.85	8,099.24	-827.33	289.46	14,525,203.06	2,092,904.21	39° 59' 11.153 N	109° 23' 4.801 W	
8,315.00	1.00	118.76	8,189.23	-827.74	290.70	14,525,202.67	2,092,905.47	39° 59' 11.149 N	109° 23' 4.785 W	
8,406.00	1.23	100.71	8,280.22	-828.31	292.36	14,525,202.14	2,092,907.13	39° 59' 11.144 N	109° 23' 4.763 W	
8,496.00	1.43	113.42	8,370.19	-828.93	294.34	14,525,201.55	2,092,909.12	39° 59' 11.137 N	109° 23' 4.738 W	
8,587.00	1.42	124.07	8,461.16	-830.02	296.32	14,525,200.50	2,092,911.12	39° 59' 11.127 N	109° 23' 4.713 W	
8,661.00	1.19	144.56	8,535.15	-831.15	297.52	14,525,199.38	2,092,912.34	39° 59' 11.116 N	109° 23' 4.697 W	
LAST SDI MWD PRODUCTION SURVEY										
8,720.00	1.19	144.56	8,594.13	-832.15	298.23	14,525,198.40	2,092,913.07	39° 59' 11.106 N	109° 23' 4.688 W	
SDI PROJECTION TO BIT										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N-S (ft)	+E-W (ft)		
191.00	190.99	0.96	1.01	FIRST SDI MWD SURFACE SURVEY	
2,380.00	2,299.47	-495.55	170.21	LAST SDI MWD SURFACE SURVEY	
2,432.00	2,348.40	-512.46	175.06	FIRST SDI MWD PRODUCTION SURVEY	
8,661.00	8,535.15	-831.15	297.52	LAST SDI MWD PRODUCTION SURVEY	
8,720.00	8,594.13	-832.15	298.23	SDI PROJECTION TO BIT	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_